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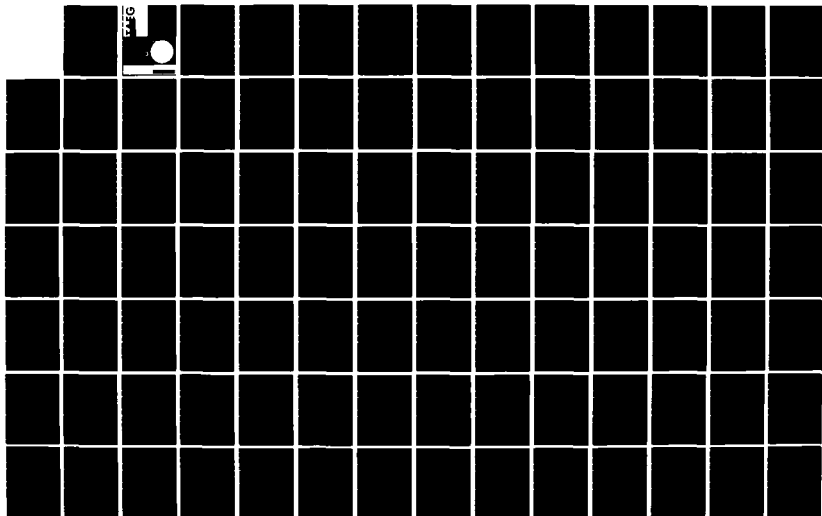
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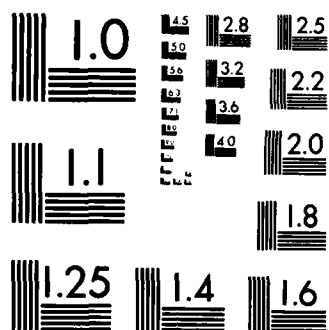
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TRAINING
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TECHNICAL REPORT 112



**RECOMMENDED SOLUTIONS
TO FIRE FIGHTING
TRAINING PROBLEMS**

FEBRUARY 1982

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TRAINING ANALYSIS AND EVALUATION GROUP
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TAEG Report No. 112

RECOMMENDED SOLUTIONS TO
FIRE FIGHTING TRAINING PROBLEMS

Curtis C. Cordell
Roger V. Nutter

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Training Analysis and Evaluation Group

February 1982



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report presents proposed solutions to problems identified in five general areas of fire fighting training. The areas are: <ul style="list-style-type: none"> • policy • management • requirements • safety • budget and finance. 		

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SECTION I

INTRODUCTION

A review of fire fighting training in the Naval Education and Training Command (NAVEDTRACOM) presented in TAEG Report No. 82¹ identified three general problem areas in existing fire fighting training. These concerned the management of training, shortfalls in required training, and improper and inefficient training. Based on the findings of this study a meeting was held at the Headquarters, Chief of Naval Education and Training (CNET). Concerned CNET personnel and representatives of the Training Analysis and Evaluation Group (TAEG) met to discuss the findings of the study and to propose means for correcting identified faults in training. This preliminary analysis identified 13 specific areas of consideration. These areas of consideration are enumerated in table 1. TAEG was tasked² to investigate these 13 specific areas and to provide recommendations for alleviating the problems identified. A Plan of Action and Milestones was submitted to CNET for approval,³ and the study commenced in May 1981.

Two features of this study are worthy of note. First, as training deficiencies were identified, initiatives for problem solution were recommended immediately to CNET. Second, the study was designed to be terminated within 12 months. This decision stemmed from the fact that implemented recommendations for problem solution in an area may not yield immediate results. Thus, long-term observation of the effects of an action followed by a reevaluation of the problems may be required. This would cause an unjustified delay in reporting the study findings to CNET.

PURPOSE OF THIS STUDY

The purpose of this study was to examine the 13 areas of consideration (hereinafter referred to as areas) identified in the tasking letter and to provide CNET with recommendations for improving and systematizing fire fighting training. In addition, any additional weaknesses in the fire fighting training system identified during the course of the study were to be addressed in the same manner as the 13 areas.

APPROACH

A simultaneous data collection and analysis approach was used wherein TAEG gathered data and information from involved commands. As part of the procedure, when a local problem was identified, an immediate analysis was

¹C. C. Cordell and R. V. Nutter. A Review of Fire Fighting Training in the Naval Education and Training Command, TAEG Report No. 82, February 1980. Training Analysis and Evaluation Group, Orlando, FL 32813

²CNET ltr Code N-214 of 1 April 1981

³TAEG ltr CCC of 10 April 1981

TABLE 1. AREAS OF CONSIDERATION

AREA NO.	CONSIDERATION
1	<p>Provide a comprehensive description/definition of the different levels of fire fighting training. The description/definition should be based on an analysis of fleet needs and should encompass the following:</p> <ul style="list-style-type: none"> a. Terminal objectives of each level. b. Team training, operations and maintenance training, acquisition training, PQS requirements, follow-on training, advanced training, training utilizing the 19F (series) trainers. c. Student input to each level by type commander.
2	<p>Identify special training needs of recruits, Coast Guard personnel, Military Sealift Command, midshipmen, and reservists.</p>
3	<p>Investigate the status of OPNAVINST 3541.1C and, if necessary, provide CNET with any revision this draft instruction may require because of changes in requirements in the last 2 years, or because of any new findings of this TAEG study.</p>
4	<p>Analyze fleet and fleet type commander instructions on fire fighting and damage control. Based on this analysis, provide draft letters to CNET which would recommend to instruction sponsors what changes need to be incorporated to make all requirements consistent.</p>
5	<p>Investigate and make recommendations for the health/habitability aspects of fire fighting training including, in part:</p> <ul style="list-style-type: none"> a. Determine the need for BIO-PAKs and, if necessary, develop a sample directive for CNET promulgation requiring the use of BIO-PAKs. b. Identify discrepancies in safety procedures among schools and prepare a draft CNET letter for NAVSAFECEN recommending corrections to the safety procedures.
6	<p>Identify areas of current training where there are serious funding deficiencies, and provide estimates of funding required to meet a stated requirement. Put these requirements in priority order.</p>

TABLE 1. AREAS OF CONSIDERATION (continued)

AREA NO.	CONSIDERATION
7	Provide cost estimates to carry out recommendations made in this study as appropriate.
8	Analyze current fire fighting student accounting and reporting system. Identify deficiencies and devise a system by which all attendees will be identified by service and group. Draft letters/instructions for CNET to send to subordinate commands to initiate the accounting and reporting system.
9	Analyze current quota control system and, if necessary, devise the most efficient method for managing quota control. Draft letters/instructions as necessary for CNET to initiate system.
10	Investigate fire fighting school instructor and administrative personnel utilization. Make recommendations as to the maximum utilization of instructor and administrative personnel. Among other things, investigate and discuss specifically the implications to CNET of shortage of HT personnel.
11	Recommend changes to current curricula and provide an outline and terminal objectives of any new courses that may be recommended (e.g., new Twin Agent System Course at SSC Great Lakes and establishment of a fire fighting school at NETC, Newport).
12	Analyze the current system for managing the fire fighting and damage control schools. Make recommendations, as necessary, towards the most efficient "wiring diagram" for controlling and managing these schools. Describe all steps necessary to implement this management system.
13	Investigate the status of fire fighting related proposed Navy Training Plans (e.g., NTP-S-00-7202B, Improved Fire Extinguishing Systems) and, when appropriate, evaluate the draft NTP's as to their implications on the findings of the current tasking. The appropriate NTP's will be furnished by CNET.

II Navy Enlisted Classifications, NAVPERS 18068D, there are no NECs applicable to these three areas under the general heading of HT. Yet there are numerous NECs applicable to specialists in the ship repair field. One form of recognition of the DC specialist is to assign an appropriate NEC for the specific specialty.

b. RECOMMENDATIONS. Three NECs appear to be needed--one for agent defense, one for damage control, and a third for fire fighting. For agent defense and damage control, persons should be awarded an NEC who have instructed in these fields and are certified as proficient by the school commanding officer. Fire fighting does require additional instruction. Area 11, a subsequent section, discusses the establishment of a fire fighting instructor's school. It is proposed the person (of any rating) who has attended this school and qualified as an instructor at an established fire fighting school be awarded the fire fighting NEC. In addition, it is suggested that a sequence number no higher than 3 be assigned to HTs who qualify for any of the suggested NECs.

It is probable that the recognition given HTs combined with the school requirements to obtain that NEC may facilitate obtaining volunteers for CNET DC and fire fighting schools.

AREA 12. MANAGEMENT

As indicated earlier, the generic term damage control covers three specific areas: agent defense, shipboard damage control, and fire fighting. Agent defense, a speciality unto itself, is vital in keeping the ship operative under certain specific conditions; i.e., NBC or CBR attack. Shipboard damage control is concerned with countering the effects of primary damage and with preventing secondary damage. Fire fighting centers on the prevention and extinguishing of fires. The latter two areas of damage control are mutually supportive and interactive. Since this study was directed primarily at fire fighting, top level management of generic damage control was not examined; only shipboard damage control training management at the school level was examined as it affected fire fighting training. Neither the budget process nor the quota control/reporting process will be addressed in this section. The budget process will be discussed subsequently under Area 6, and the quota control/reporting process was already covered under Areas 8 and 9.

1. SCHOOL LEVEL MANAGEMENT.

a. FINDINGS. At the school level, management is direct and effective. Schools are organized in parallel to shipboard organization, that is, there is an engineering department with damage control as one division. Within the damage control division there are, generally, two sections, shipboard damage control which handles all courses except fire fighting, and fire fighting. The separation of shipboard damage control and fire fighting should not be allowed. The interdependence of the two fields of endeavor is such that the classes in one section should support the classes in the other. It is worth illustrating a problem caused by this separation.

At one time, for trainees from certain DC and DC related courses are required to attend a fire fighting course as part of the DC curriculum. A

it was determined that instructors should not perform maintenance on other than training aids and devices and equipment used to extinguish fires, or perform cleaning chores.

The fire fighting schools require two administrative ratings, a yeoman (YN) or personnelman (PN), and a storekeeper (SK). At this time some schools use instructors to fill these positions, at others, the billets are filled on a part-time basis. Both conditions lead to a diversion of highly trained instructors from their proper duties of instructing.

b. RECOMMENDATIONS. All maintenance, not specifically the responsibility of instructors, should be performed by base public works. A priority system is needed to ensure major equipments and safety equipment; i.e., backup pumps, are, as nearly as possible, continuously operational. Individual school commanding officers should arrange, on a high priority basis, for daily working parties from the base commander's pool of available personnel to clean the fire field, and contract through the base commander for cleaning of other spaces.

It would contribute to the efficiency of the fire fighting schools to assign on a continuous basis a YN/PN and an SK striker to each school staff.

2. SHORTAGE OF HTs. The overall impact of the shortage of HTs on CNET cannot be assessed without a study of the damage control (DC) schools as well as fire fighting schools. There was insufficient time to expand the scope of the present investigation to include the DC schools and isolated courses. Subject to CNET decision, TAEG is prepared to undertake a study of the impact of the shortage of HTs on DC schools.

a. FINDINGS. With respect to fire fighting schools, the shortage of HTs will have minimal impact. Repair party leaders, scene leaders, and fire fighting teams can be drawn from any rating. Instructors, as was previously stated, come predominantly from five ratings, and there is no reason for this to change. Thus, a shortage of HTs will not affect the schools. However, the desirability of being assigned as a fire fighting instructor can be enhanced.

The HT rating is composed of persons with a diversity of skills. This results in a "track" system, one group of HTs work predominantly in the ship repair field, another group in the DC field. A consensus of the HTs interviewed was that the DC field is considered the least desirable, and many HTs avoid this type of work. The primary reason for this attitude is the apparent failure of command to recognize the importance of damage control and to give adequate recognition to HTs in the DC field. The CNO, possibly in recognition of this problem, has proposed (message 062007Z May 1981) that a Navy Enlisted Classification (NEC) be assigned for Damage Control/Fire Fighting provided certain training requirements have been met.

Generic damage control is basically composed of three mutually supportive, but divergent skills: agent defense (Nuclear, Biological, and Chemical (NBC) and Chemical, Biological, and Radiological (CBR)); damage control, to include maintenance of equipment and stability; and fire fighting. In the Navy Enlisted Manpower and Personnel Classifications and Occupational Standards, Section

Education Manual Instruction, Chapter 2, section C-6-b-(4) encourages commanding officers to avail themselves of local available training, and authorizes direct liaison with Navy commands. With respect to fire fighting training this policy is followed. Many schools report that USCG units do avail themselves of unexpected opportunities and request training. The requested training is usually provided. These quotas are requested and granted independently of those solicited from the CNO.

Those USCG live fire fighting quotas requested of the CNO are general, apply to one specific location, and contain no date or time for the course. This precludes the quota control personnel from developing an orderly planning schedule. The CNO covering letter which forwards these quotas to CNET authorizes direct liaison to accomplish matters of mutual concern.

b. RECOMMENDATIONS. It would enhance planning if an annual meeting was held during the fourth quarter of each fiscal year between the CNET Functional Commanders concerned and training representatives of the Headquarters, Commandant, U.S. Coast Guard, to establish the requisite quotas by location and course convening date. Operational unit emergency training, as previously defined in this area, could be handled as is proposed for Navy ships, but on a lesser priority.

AREA 10. INVESTIGATE FIRE FIGHTING SCHOOL ADMINISTRATIVE AND INSTRUCTOR PERSONNEL UTILIZATION. INVESTIGATE AND DISCUSS THE IMPLICATIONS TO CNET OF A SHORTAGE OF HULL MAINTENANCE TECHNICIAN (HT) PERSONNEL.

This area logically divides into two issues, personnel utilization and the shortage of HTs. Each issue will be addressed independently.

1. PERSONNEL UTILIZATION. The predominance of instructors at the fire fighting schools are E-6 and E-5 in the following ratings: boatswain mate, machinist mate, boiler tender, engineman, and hull technician. The sea/shore rotation for these ratings, as determined from the NMPC issued Enlisted Transfer Manual, NP-15909C, is 60 months/36 months. The time spent ashore is critical to the morale of the instructors, and could influence their decisions with respect to reenlistment.

a. FINDINGS. At this time instructors provide a significant proportion of the maintenance of the equipment, in and on the buildings, and on the grounds. In addition, they are required to do much of the cleaning of operational areas (fire field) and classrooms. Maintenance on training aids and devices and equipment used to extinguish fires is the only direct responsibility of instructors or assigned maintenance personnel. Other maintenance functions are performed because, it is claimed, the public works personnel are slow to respond and expensive. Cleanup chores are done by instructors because of the nonavailability of working parties drawn from the base and the edict which forbids using trainees in this type of work. In consideration of the administrative load carried by instructors, class and course preparation time, time spent on maintenance which is the responsibility of instructors, and the stressful conditions encountered during live fire fighting instruction,

Personnel Command (NMPC) on a continuing basis. Not all of these quotas are used at all classes.

Generally, quota control notifies the school of the numbers of prospective attendees late on Thursday or Friday in the week preceding the week the courses convene. Each school has developed a method of notifying local commands desiring quotas of spaces available should all quotas not have been filled. No single system is used, each location having developed a system best suited to the local conditions. These systems should not be tampered with; they work.

b. RECOMMENDATIONS. There are two classes of live fire fighting training now being conducted; basic, which is individual training, in courses J-495-0412 and J-495-0413, and team, courses J-495-0414 and J-495-0418. In order to ensure quotas are available to operational units in both the basic and team training courses, it is suggested that quota control not issue 20 percent of the available spaces in the basic courses and one team training course quota in each course per week until 2 weeks prior to the course convening date. In addition, it is suggested that the NMPC notify the school not more than 30 days in advance of quotas required for OHP personnel and, should the recommendation contained in section II, Area 2, paragraph 1.b. concerning NROTC midshipmen be accepted, these quotas also be requested not more than 30 days in advance of the course convening date.

2. UNITED STATES NAVAL ACADEMY (USNA) MIDSHIPMEN.

a. FINDINGS. There is no cost effective, practical method of providing live fire fighting training for the required numbers of USNA midshipmen at this time. Quotas for a limited number are requested annually at the Navy Damage Control Training Center (NDCTC), Philadelphia and Fleet Training Center (FTC), Norfolk. This method of obtaining quotas should be continued and expanded whenever possible.

Graduates of the USNA ordered to operational units are sent via the Surface Warfare Officers School (SWOS). Some of the SWOS graduates receive live fire fighting training, others do not. The construction of a fire field at the Naval Education and Training Center (NETC), Newport, and the existing training facility at San Diego should permit the expansion of live fire fighting training for all SWOS students. Until the NETC fire field is completed, responsibility for the training will have to remain with the operational units.

b. RECOMMENDATION. No recommendations are made since there are inadequate facilities to provide cost effective training at this time. This subject is addressed in greater detail under Area 2, Special Training Needs.

3. UNITED STATES COAST GUARD (USCG).

a. FINDINGS. Quotas for the USCG are requested from the CNO who relays the information to CNET. Quotas are also requested annually for cadets by the Superintendent, U.S. Coast Guard Academy. In addition, Commandant, U.S. Coast Guard Instruction (COMDTINST) M1500.10, Coast Guard Training and

In the past, MIISA has conducted courses/seminars for personnel involved in completing NITRAS reports. However, these courses included people from various commands. This has resulted in a global approach to the system rather than a limited approach which emphasizes the resolution of individual command problems.

b. RECOMMENDATION. Since it is imperative that persons responsible for completing NITRAS report forms have a detailed knowledge and understanding of all aspects of the reporting system, it is strongly recommended that MIISA send a qualified person to each major school command (i.e., FTC, SSC, RTC) to instruct and work with command personnel responsible for NITRAS reporting. The period of instruction/assistance should not require in excess of three days per visit. Because the NITRAS reporting system undergoes constant updating, consideration should be given to providing refresher courses either periodically or on a biennial basis.

AREA 9. QUOTA CONTROL SYSTEM

1. GENERAL. The primary purpose of fire fighting schools is to ensure all personnel embarked on operational Navy ships are trained to prevent fires, combat fires, and maintain fire fighting equipment. Thus, any quota control system must emphasize the needs of the operational forces and recognize the vagaries of operational schedules.

a. FINDINGS. The means whereby operational commanders and commands are notified of courses and the availability of quotas is satisfactory. No modification to this system appears warranted.

At some installations quotas are assigned up to 6 months in advance of course convening dates. At this time this procedure presents no problems for maintenance courses, but does cause difficulties in the live fire fighting courses. When all quotas for the live fire fighting courses are issued even 2 months in advance of the convening dates, no quotas remain for ships who require this training on an emergency basis. An emergency could be caused by operating schedule changes such as an unexpected availability or an unplanned deployment.

Fire fighting schools have, at times, had their total quotas over an extended period for live fire fighting training dedicated to a single ship. This situation arises when a major ship, for instance a carrier, completes an overhaul, a new vessel is being commissioned, or a vessel is ordered into a restricted availability. Under these conditions frequently no quotas for live fire fighting training are available, and, at times, quotas already issued require cancellation.

At schools located adjacent to ports of embarkation blocks of quotas for live fire fighting courses are set aside for personnel assigned to overseas home ported and/or ships. These quotas are requested by the Naval Military

c. GRADUATES BE SEPARATED IN TERMS OF THEIR ORIGIN.

(1) FINDINGS. The existing NITRAS reporting system calls for graduates to be reported by SOC. These codes require minor revision in that it is not always possible to isolate one group from another. An example of this was given in paragraph 6 of appendix G as it applies to persons trained under the cognizance of the CHNAVRES.

(2) RECOMMENDATION. It is recommended that this situation be addressed in the proposed, planned TAEG study of the NITRAS reporting system.

d. IDENTIFY TEAMS TRAINED.

(1) FINDINGS. Certain existing fire fighting courses (J-495-0414 and J-495-0418) are designated as team training courses. The number of people who make up a team can vary significantly. The existing NITRAS report format only calls for the number of individuals trained, and this is not convertible to the number of teams trained. Operational commanders cannot determine how many teams were trained over a given time, and, therefore, they may not have a clear picture of the operational readiness of their command. This problem may be amplified with the introduction of the 19F1 and 19F1A training devices.

(2) RECOMMENDATION. A block is needed to be added to the NITRAS report form which, where applicable, identifies the number of teams trained. This should be in addition to the number of individuals trained.

4. NITRAS REPORTS.

a. FINDINGS. The information needs of fire fighting training managers (curriculum, personnel, and cost) differ markedly from the information needs of operational commanders and these needs, in turn, are at variance from the data needs of school commanders. It would be cost effective to publish reports slanted toward each type of data need, and to distribute NITRAS reports so organized only where they are required.

b. RECOMMENDATION. It is recommended that CNET request MIISA to explore the data needs and desired format of reports for the various echelons of command, and, where needed, to revise reporting formats to meet each school or manager's need.

5. NITRAS UNDERSTANDING.

a. FINDINGS. There is a general lack of understanding at the working level of the purpose, use, and importance of NITRAS. In addition, persons responsible for completing the NITRAS reporting forms have difficulty in determining the correct codes. Lastly, the differences between various categories of Naval personnel are not clearly understood. This last point is illustrated in the TAEG memorandum of 14 October 1981 (appendix G).

five part sets. The original and three copies would be forwarded to the school command administrative office, the fourth copy would be retained at the fire fighting school. Distribution of the original would be to MIISA, one copy to the administrative commander (CNET Functional Commander), one copy to quota control, and one copy retained for file. This system would eliminate all transcribing errors except those which might occur when the information is entered in the data bank.

3. REPORT CONTENT. For the NITRAS file to be complete, it is imperative that all courses be included, that the courses be identifiable in terms of subject matter content, that the graduates be separated in terms of their origin using the student origin code (SOC), and, lastly, that for team training, commanders be able to determine the number of teams trained. The existing NITRAS reporting form is capable, with minor modifications, of including each of the elements named.

a. ALL COURSES BE REPORTED.

(1) FINDINGS. The investigation uncovered a number of courses being taught at fire fighting schools which do not have a CIN number, and for which no CDP number has been requested. This situation was the subject of TAEG memorandum TAEG:CCC W1081 of 3 June 1981 (appendix F). As a result of this memorandum, the CNET addressed a letter to his Functional Commanders charged with managing fire fighting schools requesting action be taken to ensure all courses taught be included in the CANTRAC, that each course be assigned a CDP number and reported to NITRAS using SOCs. (This letter is appended as TAB A to appendix F.) Action taken in response to this letter should eliminate this situation.

(2) RECOMMENDATIONS. None required.

b. ALL COURSES BE IDENTIFIABLE IN TERMS OF SUBJECT MATTER CONTENT.

(1) FINDINGS. At some commands certain types of fire fighting training are reported using a CDP code for Special Briefs. It is not possible from an examination of the NITRAS reports to determine whether the special brief consisted of a lecture, demonstration, or actual fire fighting training. Equally, it is not clear whether the brief was for the purpose of public relations; i.e., sea cadets, or to actually train as would be the case should a local fire department be the recipient. In some instances it is not possible to relate these special briefs to fire fighting rather than damage control and/or engineering in general. Lastly, this causes problems in accounting for personnel whose training responsibility rests with Chief of Naval Reserve (CHNAVRES). For a review of the last problem see paragraph 5 of appendix G.

(2) RECOMMENDATION. It is recommended that this situation be addressed in the proposed, planned TAEG study⁴ of the NITRAS reporting system.

⁴This study resulted from a verbal CNET tasking. The tasking is based on the findings of TAEG Technical Note 5-81, Time Estimates for Teaching Eight Self-Paced Courses Under Group-Paced Instruction, September 1981, and the TAEG Differential Effectiveness Study soon to be published.

quota control centers either directly or through the functional commands, and/or through the financial control center of the school command.

The capability exists in NITRAS to handle all required data and to publish the needed information in the desired format; however, this capability is not fully exercised. The following paragraphs identify the five primary reasons for this situation.

1. REPORTING SYSTEMS.

a. FINDINGS. Two reports of school graduates are received at CNET; one is made to the Management Information and Instructional Systems Activity (MIISA) and one is made to the accounting code (N-6). The numbers of actual graduates as reported in MIISA report 1500.1028 and MIISA report 1500.1204 for FY 81 (through 28 February 1981) are the same; however, the number of equivalent graduates, as reported by CNET (N-6) does not always agree with the actual graduates. This discrepancy can be significant; for example, in FY 80 in one course at Norfolk, VA, the discrepancy was 7.55 percent, while in another course for the same fiscal year at the same location the discrepancy was -12.9 percent. The difference in numbers appears to be caused by the method of reporting/computing. MIISA receives its reports in actual numbers of graduates while accounting receives its reports in man-months of training which is converted to equivalent graduates.

b. RECOMMENDATION. In order that all CNET originated reports agree, it is suggested that one method of reporting be adopted throughout the NAVEDTRACOM, and that this method utilize the numbers reported to MIISA.

2. METHOD OF REPORTING.

a. FINDINGS. The generally followed method of reporting is to have the instructor/yeoman at the fire fighting school complete a form giving all pertinent data. This form is forwarded to a central point in the command and transcribed to the NITRAS reporting form for submission to MIISA. Forwarding from the command may be accomplished by mailing the form or a floppy disc, or in one instance, by direct input. The element of error multiplies notably with the increase in manual manipulations required.

The two greatest sources of error are (1) transcribing from one form to another and (2) inputting data from the form to a computer. The consensus is that a direct, on-line capability from the central collection point for both entering data into the NITRAS data base and error correction would be the most efficient method of eliminating human errors. Such a system could impose unacceptable costs except at major central points; i.e., CNET Functional Commands. An on-line capability will soon be available at all Functional Commands. It may be possible for other commands to activate an on-line capability. MIISA recognized the possibility and by MIISA message 172306Z July 1981 (appendix E) requested information on automatic data processing systems which can or could be used for NITRAS purposes in the future.

b. RECOMMENDATIONS. At other than major control points or commands with an on-line capability, it is recommended that the fire fighting school prepare the actual NITRAS form. These report forms should be prepackaged in

The problems identified in the prior two paragraphs are applicable to all TYPECOM directives. However, these directives are, in turn, derived from the OPNAVINST 3541.1B (see Area 3). It would be impractical to request the fleet and fleet type commanders to review and revise their subordinate instructions until OPNAVINST 3541.1C is issued. Since the need remains to identify fleet training requirements TAEG has proposed a letter to CINCLANTFLT and CINCPACFLT. A copy of this proposed letter and its covering memorandum is attached as appendix C.

AREA 13. INVESTIGATE THE STATUS OF PROPOSED NAVY TRAINING PLANS (NTP) RELATING TO FIRE FIGHTING

1. FINDINGS. There is no current, effective NTP covering fire fighting. NAVSEASYSKOM (SEA 5334) has prepared a new NTP, NTP-S-00-7202B, Improved Fire Extinguishing Systems, which was released for comment on 10 December 1981. A NTP conference may be scheduled to discuss this draft shortly.

NTP-S-00-7202B has been drafted to cover three fire fighting systems; HALON 1301, High Capacity AFFF, and the Twin Agent. No other systems or equipments are addressed; it was expected that other equipments/systems would be covered by individual NTPs. The study team was unable to locate other NTPs which include consideration of NAVEDTRACOM needs with respect to training requirements.

NTP-S-00-7202B does stipulate training requirements which will require the modification of some existing courses. The courses affected are named in Area 11, Recommended Changes to Current Curricula.

2. RECOMMENDATION. A single NTP is required which covers existing and new fire fighting equipments/systems as well as modifications contemplated. This could be a general, continuing plan developed for the express purpose of ensuring the CNET Fire Fighting Manager, proposed in Area 12, is conversant with developments in the fire extinguishment field. Such an NTP was recommended in TAEG memorandum TAEG:CCC W1081 of 9 September 1981, provided in appendix D. It would be appropriate for CNTECHTRA to prepare the draft of this plan since his schools have established a liaison with technical commands/agencies, are in contact with fleet operational units, possess the subject matter experts needed, and are familiar with the NTP process.

MANAGEMENT

AREA 8. STUDENT ACCOUNTING AND REPORTING SYSTEM

The primary source of accounting data for students attending fire fighting school is NITRAS. These data must be accurate to ensure managers can properly plan for both personnel and funding.

Accounting is only as effective as the information included in the data bank. This information, in turn, is acquired from the individual school

2. RECOMMENDATION. TAEG recognizes it is impractical to order all graduates of recruit training to ships by way of a fire fighting school. However, should the new OPNAVINST 3541.1C contain similar or identical fire fighting training requirements to those in OPNAVINST 3541.1B, the existing dichotomy of training requirements and training capability will remain. It is recommended that CNET monitor the revision closely to ensure this problem is eliminated.

AREA 4. ANALYZE FLEET AND FLEET TYPE COMMANDER DIRECTIVES. BASED ON THIS ANALYSIS PROVIDE CNET WITH DRAFT LETTERS TO INSTRUCTION SPONSORS RECOMMENDING CHANGES WHICH NEED TO BE INCORPORATED.

The review of fleet and fleet TYPECOM directives was reported in TAEG Report No. 82. No known changes to existing directives have been made since the issuance of that report in February 1980. The following basic problems have been identified.

- No CINCPACFLT directive implementing the effective OPNAV instruction could be located.
- Only one TYPECOM addresses the need for fire fighting equipment maintenance training courses.
- One TYPECOM has established no live fire fighting training requirements.
- Specific personnel to be trained are not always identified.
- One TYPECOM does not require training in course J-495-0418, Shipboard Fire Fighting Team Training. Since this is the only live fire fighting course designed to train inport emergency teams or repair parties, this oversight could be critical.
- In some instances refresher training cycles are confusing, appear dependent on courses previously attended rather than billet assignment, and are not consistent with policy as established by senior commanders.

1. FINDINGS. With the exception of the Foam Generating Systems courses, no documentary evidence could be located which identifies fleet or operational force requirement inputs to fire fighting training. Existing courses have been developed within the NAVEDTRACOM and are offered to the fleets. Thus, CNET is unable to ensure specific and/or special training requirements (if any) which exist in the fleets are met.

Existing requirements for the numbers of personnel who must be trained cannot be identified from the TYPECOMs directives. The numbers to be trained have a direct impact on the budget and on the numbers of instructors needed at each fire fighting school. At this time no valid estimate can be made, and no estimates of the numbers to be trained are submitted.

It is important to recognize the maxim that a good team cannot function effectively without operable equipment. Thus a closely related area of instruction is fire fighting equipment maintenance and the Damage Control Petty Officer (DCPO) training in the Planned Maintenance System (PMS) for fire stations. It is considered that the DCPO course and the Portable Emergency Pump courses are basic, and the Foam Generating System courses are advanced. A discussion of these courses will be included under Area 11, Curriculum Changes.

The imminent introduction of fire fighting training devices in the 19F series will have no impact on these definitions or on the terminal objectives. Existing courses will require restructuring of the skill teaching procedures, but no basic change to course content.

This area is closely related to Area 3 which addresses the proposed revision of OPNAVINST 3541.1B. The relationship exists because the basic definitions of each training level must relate to the CNO promulgated definitions of required training.

AREA 3. INVESTIGATE THE STATUS OF OPNAVINST 3541.1C AND PROVIDE CNET WITH ANY REVISIONS THIS DRAFT INSTRUCTION MAY REQUIRE

OPNAVINST 3541.1B, subject, Damage Control Training Requirements, dated 29 May 1973 has established the CNO policy with respect to fire fighting training. This directive requires revision. CNO (OP-39) has released a draft revision, OPNAVINST 3541.1C, for comment. CNET comments were forwarded to CNO by CNET ltr Code N-23 of 13 December 1979. Since training requirements may change in the numbers and types of persons to be trained as well as the kind of training considered necessary, the TAEG is concerned that the proposed revision may not provide the vehicle for obtaining the requisite information.

CNO has produced a revised draft instruction which was not entirely satisfactory. This draft is undergoing further revision. No date has been established for the issuance of the revised instruction.

CNET submitted a second proposed revision to the draft instruction (TAB A to appendix B) in response to a TAEG suggestion. CNET stated that accession fire fighting training may not prepare recruits for their responsibilities inherent aboard ships. The present study addressed that concern by posing the following question to instructors at all fire fighting training facilities:

Are graduates of recruit fire fighting training prepared for their responsibilities should a fire occur aboard ship?

1. FINDINGS. Most instructors replied no to the question but qualified their answers with a version of the statement that recruit training is purely indoctrinary, and designed to instill a way of thought into recruits. Subsequent training should provide the recruit with the requisite knowledge and skills.

- Managers of fire fighting training must ensure that the prerequisites, as stipulated in the CANTRAC, are met prior to commencing advanced training.

TAEK proposed the definitions of the three levels of training to CNET with the recommendation that these definitions be incorporated into the proposed revision to OPNAVINST 3541.1B. This recommendation was accepted, and by CNET letter, Code N-214 of 8 June 1981, the proposition was submitted to CNO (OP-39). A copy of the proposed TAEK letter for this initiative is enclosed as appendix B; the CNET letter is attached as TAB A to appendix B. The proposed definitions are:

- Accession fire fighting training is indoctrinary and may not prepare personnel for their shipboard responsibilities. Accession training is designed to familiarize personnel with equipment, teach terminology, and develop a measure of self-confidence.
- Basic fire fighting training presumes the knowledge factors acquired during accession training. Basic training enhances the capabilities (skills) of individuals to use existing equipment, teaches the organization and capabilities of the fire fighting team, and demonstrates the ability, through the proper use of equipment in live fire fighting, to control and extinguish fires of all classes.
- Advanced fire fighting training hones the capabilities of existing shipboard/squadron teams, particularly the senior and key men of the teams, to function in live fire situations as a team.

Terminal learning objectives for each level are based on the degree of fire fighting capabilities required. The following paragraphs define these objectives and the schools where each course is taught.

- Accession training, taught only at recruit training commands (RTCs), would have terminal objectives limited to a knowledge of the cause and means of extinguishment of all classes of fire, recognition of the basic equipments used to fight fires, capability to control and handle hoses and dry chemical containers, and the safety features which must be observed in a live fire situation.
- Basic training, taught at all fire fighting schools except the RTCs, would have terminal objectives covering in great depth the cause and means of extinguishing all classes of fire, reporting procedures, fire fighting team organization and procedures, a demonstrated capability to use all primary equipment, and a demonstrated ability to extinguish a live fire of all classes.
- Advanced training, taught at all fire fighting schools except RTCs, would have terminal objectives which emphasize the pre- and post-fire, as well as fire scene, procedures, key mens' responsibilities, communications, reporting, and demonstrated team work in the extinguishment of all classes of fire.

SECTION II

FINDINGS AND RECOMMENDATIONS

This section presents the findings of this investigation and the recommendations derived from the analyses. To facilitate comprehension, the areas most relevant to a major grouping were identified. The groupings and areas subsumed are as follows:

Policy - Areas 1, 3, 4, and 13
Management - Areas 8, 9, 10, and 12
Requirements - Areas 2 and 11
Safety - Area 5
Budget and Finance - Areas 6 and 7

The remainder of this section is devoted to the detailed examination of the areas across the major groupings. In addition, where an area discussed under a specific grouping is also relevant to another grouping(s) it is so described.

POLICY

AREA 1. PROVIDE A COMPREHENSIVE DESCRIPTION/DEFINITION OF THE DIFFERENT LEVELS OF FIRE FIGHTING

1. FINDINGS. Live fire fighting training is divided into three phases or levels: accession, basic, and advanced. Present training recognizes these levels in theory, but not in practice. Today, accession training is defined in terms of recruit training course objectives. No clear differentiation is made between basic and advanced training although common practice is to call team training courses advanced, and other training basic. This practice is recognized by the Catalog of Navy Training Courses (CANTRAC) which requires attendance at individual training courses as prerequisites to attendance at the team training courses. Frequently, this CANTRAC requirement is not honored, a subject which will be discussed further under Area 12, Management.

2. RECOMMENDATION. It is required that the three levels be defined and recognized by the policy makers, i.e., CNO, CNET, and Fleet Commanders. This recognition would take two forms:

- Include the definitions in appropriate directives. The primary directive is the pending revision to OPNAVINST 3541.1B. Subordinate directives emphasizing and expanding on the OPNAV directive would be required from CNET and the Fleet Commanders.

conducted to determine a feasible solution. In those instances where a problem involved more than one command, analysis was delayed pending the collection of data from all commands.

In order to gain a clear understanding of each area, and how each affected fire fighting training, a series of visits was made to 20 commands, and telephonic contact made with an additional four. A list of the commands is attached as appendix A. At each site visited structured interviews were conducted with personnel associated with management, requirements, instructional duties, quota control, reporting, health and safety, and curriculum. The purpose of these interviews was to precisely define problems, and to develop a basis for determining whether some practical, acceptable solution could be developed.

Most of the 13 areas are concerned with more than one issue. In these instances each issue is identified and discussed independently in terms of, where applicable, general background, findings, and recommended course of action(s).

The 13 areas were organized into five major groupings to facilitate the presentation. These groupings are: policy, management, requirements, safety, and budget and finance. For each of these groupings it was planned to address those areas subsumed under that grouping. However, during the course of the investigation it became clear that various of the 13 areas were relevant to more than one major grouping. Accordingly, the discussion of the areas within a grouping included the relevancy of a given area to one or more other major grouping. For example, a decision (policy) by the Chief of Naval Operations (CNO) may impact the number of trainees a Type Commander (TYPECOM) requires his operational units to send to fire fighting school (Management) and the type and length of training presented (Requirements).

ORGANIZATION OF THE REPORT

In addition to this introduction, two additional sections and 16 appendices are provided. Section II discusses the findings and incorporates recommended actions for each of the 13 areas listed in table 1. For each problem area, the findings of the analysis are presented followed by the action recommended together with the supporting rationale. Section III contains the conclusions. Appendix A lists the commands and activities contacted or visited. Appendices B through P present the supporting documents for the various findings of this study as well as proposed letters for CNET release. These supporting documents are included to clarify the position of the TAEG and to present additional supportive information.

portion of the DC students attending the live fire fighting segment of the course have had classroom instruction in the DC portion of the course on the knowledge factors required and the duties of individuals at the fire scene, the remainder have not. At times, students who have had classroom instruction arrive at the fire fighting school with those who have not. Thus, the classroom portion of the fire fighting course, necessary because of the mixed group, is repetitious and dull to one group, yet new to another.

b. RECOMMENDATION. Scheduling from a single office with representatives from both schools working in concert would ensure coordinated, non-repetitious instruction. Local attention should focus on local organizational structures.

2. COURSE MANAGEMENT.

a. FINDINGS. The primary difficulty observed in the course management is the willingness of the fire fighting schools to accept trainees who do not meet CANTRAC prerequisites. At some locations the command attitude is to train whomever the ships send; i.e., some training is better than none. This position is unfortunate for it could lead an operational commander to believe his unit is trained to meet emergencies whereas, in fact, it is not. To illustrate the problem, the CANTRAC states that the purpose of course J-495-0418, Shipboard Fire Fighting Team Training, is to train organized emergency details to effectively operate as a unit. To meet this purpose the following prerequisites are specified:

- All team members have completed course J-495-0412, General Shipboard Fire Fighting Training, and have six months obligated service.
- Be an organized team of from 12 to 24 members with an experienced on-scene leader.
- All team members must be general damage control PQS qualified.

Some schools are accepting unorganized teams, teams without an experienced on-scene leader, or partial teams (less than 12 men). Informal discussion with instructors elicited the fact that many team members are not PQS qualified in general damage control and/or do not have sufficient obligated service. Ships' training records in these instances indicate some emergency details (e.g., inport fire party, rescue and assistance detail) are trained whereas in reality the teams exist most prominently "on paper."

b. RECOMMENDATION. This is a local problem best handled at the school level. Interaction between school commanding officers and operational commanders could set the stage, and fire fighting schools should, after the interaction, return nonqualified teams to their units without training. An excellent form of interaction is illustrated by Fleet and Mine Warfare Training Center message 281325Z July 1981 (provided in appendix H).

3. SENIOR MANAGEMENT.

a. FINDINGS. The primary management problem does not reside at the school or school command level. Rather, it resides at senior commands.

There are, in the Continental United States, seven fire fighting schools managed by three different commanders. Management functions and interaction with user, technical, and parallel commands are neither consistent nor regular.

b. RECOMMENDATIONS. A single basic management action is needed to ensure fire fighting schools are meeting requirements, are standardized, and have the proper training aids and devices. The action required is to establish at CNET a single point of contact responsible for policy, requirements, and liaison with technical and operational commands. The responsibilities of this office, or "Czar" of fire fighting training within the NAVEDTRACOM, would include:

- establish policy for all fire fighting training
- inspect the individual schools annually to ensure standardized training occurs
- review NITRAS reports and verify these reports on a periodic basis
- convene an annual conference with user commands to review requirements and training, and to obtain estimates of the numbers of trainees for each course. Coordinate training utilization to ensure, insofar as possible, the schools are level-loaded with respect to instructor utilization.
- establish liaison with the appropriate NAVSEASYSKOM codes to ensure the fire fighting schools obtain the latest equipments and equipment modifications prior to fleet introduction
- review Technical Audits and initiate requisite follow-on action(s)
- become a single point of contact for the NAVEDTRACOM for all outside commands and agencies. This responsibility would ensure coordinated responses to senior commands, prevent duplication and interference of research and development efforts with training, and centralize billing for non-Department of Defense users of the fire fields.

REQUIREMENTS

AREA 2. IDENTIFY SPECIAL TRAINING NEEDS

In addition to the training needs of the operational forces, the Navy fire fighting schools provide training for midshipmen (two types), recruits, U.S. Coast Guard personnel, Naval reservists, Military Sealift Command personnel, and some nonmilitary personnel. Many of these categories have training needs which differ from normal operational fire fighting training requirements. Seven situations exist; each is discussed below.

1. MIDSHIPMEN. Two classes of midshipmen must be considered, those attending the USNA and persons who are members of the Naval Reserve Officers Training Corps (NROTC) at various universities. Both classes must be viewed in light of OPNAVINST 3541.1B which requires live fire fighting training prior to the commissioning of officers or prior to their first duty afloat. In addition, damage control training, to include live fire fighting training, is required after completing a tour ashore of one year duration or longer.

a. USNA MIDSHIPMEN. USNA Midshipmen are required to take two cruises during their four year period at the Academy. These cruises are either aboard a commissioned ship or aboard a Yard Patrol (YP) craft. In both instances the cruise period, underway, is extended (two or more weeks).

(1) FINDINGS. Discussions with staff officers at the USNA elicited the information that, generally, the time period between cruises is greater than one year, and the time period between the final cruise and reporting aboard their first afloat duty station also exceeds one year. Thus, three fire fighting training periods are required, one as third classmen, one as second classmen, and one in the final year or immediately following graduation and commissioning for those ordered to duty afloat.

Records of the USNA reveal that the class of 1982 had an enrollment of 1,087 in May 1981, yet in 1980 only 634 of the class of 1982 were trained at a fire fighting school. The class of 1983 at the same time had an enrollment of 1,151 and only 190 had been trained. No USNA midshipmen receive fire fighting training in a live fire environment during their final year, and, the best information available indicates none were ordered to duty afloat via a fire fighting school.

The closest fire fighting school to Annapolis is the NDCTC, Philadelphia. Some midshipmen are bussed to the NDCTC for training, some others go by YP. However, the cost of this training is prohibitive. There are no adequate quarters at Philadelphia to house the midshipmen on the base; therefore, commercial lodging is used. Costs to and from Philadelphia (including lodging) were estimated by USNA personnel to be \$20,000 per 2 day class. Other training is provided at the Fire Fighting School, FTC, Norfolk, for midshipmen on cruise assigned to ships berthed in the area. This training is cost effective; however, only a small number can be accommodated.

Since USNA midshipmen receive seamanship training which incorporates some basic damage control (predominately classroom), the existing General Shipboard Fire Fighting Training course is adequate to meet the OPNAV requirements. It will not be necessary to develop a special course for USNA midshipmen.

USNA instructor personnel estimate, to meet the CNO stated requirements, that training in a basic fire fighting course is required for 2,500 to 3,000 midshipmen each year. In addition to midshipmen, there are numerous Navy instructor personnel assigned to the Academy, and others, both officer and enlisted, assigned to the Naval Station, Annapolis. All of these people require, at a minimum, refresher training in live fire fighting prior to returning to an afloat billet.

(2) RECOMMENDATION. In consideration of the numbers of persons who require live fire fighting training at and in the vicinity of the USNA, and the cost to obtain this training, it is proposed that CNET budget to install a Device 19F3, Basic Fire Fighting Trainer - Shipboard, at the Naval Station, Annapolis. Adequate space appears to be available. The device is needed as soon as practicable. It is suggested that CNET investigate the possibility of including this device in the next Program Objective Memorandum (POM) cycle.

b. NROTC MIDSHIPMEN.

(1) FINDINGS. Since NROTC midshipmen are scattered throughout the United States the acquisition of live fire fighting training is more difficult. Their training requirements parallel those of USNA midshipmen. Again, the General Shipboard Fire Fighting Training course is adequate.

(2) RECOMMENDATION. It is recommended that the CNET propose to the NMPC that the NROTC midshipmen who are ordered to duty afloat be directed to proceed via a fire fighting school in order that they may receive the required training. The procedure to be followed would parallel that which exists for persons ordered to ships with overseas homeports. Appendix I contains a copy of the proposed letter. This subject is also addressed in Area 9, Quota Control.

2. RECRUITS.

a. FINDINGS. Recruit fire fighting training is deficient in four aspects, the student/instructor ratio is too large (160/1) in the classroom; recruits do not have adequate hands-on time; recruits do not handle, don, or activate the Oxygen Breathing Apparatus (OBA); and training aids are inadequate or obsolete.

Two companies of recruits are gathered in one classroom under the tutelage of a single instructor. Instruction is geared toward the final test, and points required to be known on this test are emphasized to the exclusion of other important data. There is little time available for questions and frequently there is insufficient time to accept all questions and requests for clarification of confusing issues because of class size. More time and smaller class sizes are imperative if effective classroom instruction is to be achieved.

Effective hands-on skill training does not occur. In actuality the recruit is required to extinguish a simple class "B" oil spill fire, but he (she) does not enter the fire environment (it is extinguished from the compartment door), and the instructor physically guides the recruit actions at all times. Each recruit faces one fire as nozzleman or, sometimes, only as number 1 hoseman.

Within the envelope of the ship, the OBA is the single equipment designed for and used by Naval personnel in fire and smoke environments to ensure combative measures can be taken. This equipment is taught to recruits by demonstration only; one recruit per group of 160 actually dons the OBA. It was proposed by memorandum (TAEG:CCC W1081 of 9 September 1981) that training

OBAs be substituted for the MK-5 gas masks when training recruits to survive in a contaminated area. A copy of the memorandum is provided in appendix J.

Training aids are, generally, obsolete at all RTCs. This applies to equipment as well as training films. For example, no RTC has been issued the Vari-nozzle now being distributed to operational units. Some training films depict techniques and equipments no longer in use.

Recruit fire fighting training is accession training as previously defined. It is not designed to train a fire fighter nor does it prepare a person for possible emergency fire situations aboard ship.

b. RECOMMENDATIONS. Given the constraints imposed on and objectives of recruit training the only curriculum change required is the substitution of OBA training for the MK-5 gas mask training. Recruit training graduates should be ordered to afloat duty via a fire fighting school or, in place of this, should be ordered to a basic fire fighting course within 6 months of reporting aboard.

3. UNITED STATES COAST GUARD.

a. FINDINGS. The Navy fire fighting schools are the primary source of fire fighting training for USCG personnel. Discussions with the people in the Training Branch, Headquarters, USCG have indicated that existing training is satisfactory. No special or unique courses are desired or needed. There are minor problems in the quota and funding areas; these are discussed under Area 9, Quota Control, and Area 6, Funding Deficiencies.

b. RECOMMENDATIONS. No recommendations are made since existing courses are satisfactory.

4. NAVAL RESERVISTS. The term reserve, as used in this report, applies only to those persons under the jurisdiction of the Chief of Naval Reserve (CHNAVRES). The CHNAVRES training responsibility is limited to Navy personnel whose designation is USNR-R, USNR-S, and TAR's, none of whom are assigned to operational commands on permanent duty orders.

a. FINDINGS. Only one CANTRAC listed fire fighting course, J-495-0426, Reserve Aircraft Fire Fighting, is specifically designated for reservists. Actual training given is not standard, is inconsistent, and, frequently, bears little resemblance to the curriculum outline. CHNAVRES personnel, both in the headquarters and at the Readiness Command visited, have stated that they have no idea what live fire fighting training is actually being accomplished.

An additional training need of the reserve corps is for reserve fire fighting instructors. At some locations reserves are trained and qualified as instructors by the personnel assigned to the fire fighting installation. These reservists, in turn, train CHNAVRES personnel requiring fire fighting training during periods the school facilities are not in use for the training of the regular contingent of the Navy. Reserve instructor training varies from location to location as the regular instructor training varies and as the facilities vary.

Problems associated with the reporting of reserve training were discussed under Area 8, Student Accounting and Reporting System.

b. RECOMMENDATIONS.

(1) Discussions at CHNAVRES Headquarters led to the conclusion that four courses are required to meet reserve training requirements. These courses, the proposed course model manager, and terminal objectives were discussed in a TAEG memorandum (TAEG:CCC W1081 dated 14 October 1981) provided in appendix G.

(2) It is recommended that a central fire fighting instructor course be established, and that this course be made available to selected reserves. This course will be addressed again in Area 11, Curriculum Changes.

5. MILITARY SEALIFT COMMAND (MSC). MSC personnel are trained by their own instructors using Navy facilities on the West Coast, and in their own facilities on the East Coast. Curricula have been developed by the MSC. Equipment not available at the Navy facility is furnished by the MSC. There are no special training needs.

6. NONMILITARY PERSONNEL. Training is provided at Navy fire fighting schools by Navy personnel for many assorted groups. Some of this training can be categorized as public relations, other as professional training for local civilian, Naval base, and industrial fire fighters.

a. FINDINGS. Public relations training, that provided the Naval Junior Reserve Officer Training Corps (NJROTC), Boy Scouts, and like organizations, consists of locally modified versions of existing courses. It is satisfactory and requires no revision.

Professional training usually covers building fires and oil spill fires. There are courses existing which can provide satisfactory training. Industrial fire fighter trainees usually provide all equipment needed except extinguishing agents and their means of delivery, and burn agents. All indications are that the training provided is satisfactory.

b. RECOMMENDATION. When a substitute for Aqueous Film Forming Foam (AFFF) is introduced into fire fighting training, it would be prudent to investigate a special course which covers only extinguishment with water and/or AFFF. These are the primary extinguishment agents used by industrial and local fire fighters.

AREA 11. RECOMMENDED CHANGES TO CURRENT CURRICULA

Existing courses at existing facilities, given the physical limitations and environmental constraints, are satisfactory with the following exceptions.

1. COURSE A-495-2037, DAMAGE CONTROL P-250 PORTABLE EMERGENCY PUMP OPERATION AND MAINTENANCE.

a. FINDINGS. Course A-495-2037 terminal objectives are clear and satisfactory. However, at some installations the school is being used as much as a repair facility as a school. Schools are not repair facilities, and to act in that capacity degrades the teaching capability. This is a local problem which is more appropriately solved at the school level.

Persons attending the course are not always the persons responsible for pump maintenance and operation. CNET cannot control the persons being ordered to the school; therefore, this will remain a problem. Commanding officers of the schools concerned should discuss this situation with local operational commanders in an effort to ensure the correct people attend the course.

The course A-495-2038 is designed to provide training on the PE-250 pump which is an electric start version of the P-250. There are three known configurations of the PE-250 which, the Course Model Manager states, have significant differences. Three variations of the course A-495-2038, with identical terminal learning objectives, are needed. At this time only the Naval Technical Training Center (NTTC), Treasure Island, teaches the PE-250 course. The pump is being distributed to ships in both the Atlantic and Pacific fleets.

Course A-495-2037 is exported by the fire fighting schools to operating units of the Atlantic Fleet (COMTRALANTNOTICE 1540). The following problems have appeared:

- The technical training equipment (TTE) needed to teach this course is heavy, bulky, and voluminous. This causes serious logistics problems for the single instructor sent to teach.
- The fire fighting schools have one instructor assigned to this course. When he is away, no courses can be held at the school. Since exportable training is scheduled only on a not-to-interfere basis with scheduled school courses this presents no problem at this time. However, should schools commence offering course A-495-2038 in multiple versions or should the need for course A-495-2037 increase, this facet could cause problems.
- The instructor is required to be away for an entire week when the P-250 course is exported. At this time Charleston is exporting the course twice a month. This could cause serious morale problems for the instructor.

b. RECOMMENDATIONS.

(1) Initiate action to ensure all versions of the PE-250 pump be distributed to all fire fighting schools, that course A-495-2038 be expanded to include training in all versions of the PE-250, and that all fire fighting schools be directed to commence teaching the course. This proposal was originally submitted to CNET by TAEG memorandum (TAEG:CCC W1081 of 25 September 1981) provided in appendix L.

(2) Since all fire fighting schools offer the P-250 course, and it is available at or in the vicinity of the majority of major Naval bases, it is recommended that CNET review the policy of exporting course A-495-2037. It may be more cost effective to transport students to the school rather than transport the instructor with his TTE to remote sites.

2. COURSE K-495-2179, FOAM GENERATING SYSTEMS.

a. FINDINGS. Four total systems are taught. The course is well designed and graduates should be capable in the PMS and operation of all systems. Terminal objectives are satisfactory for each of the units of the course.

There is a major fault to the course. All students are instructed in all systems. This means that trainees learn not only the system aboard their ship, but other systems they may never see. Attendees must leave their ship for an extended period (9 total days) for training much of which is not ship specific. Commanding officers are reluctant to release personnel for this extended period of nonship specific training; therefore, the numbers attending course K-495-2179 are relatively small.

To correct this training utilization problem, course K-495-2180 was developed. This is exportable training to COMNAVAIRLANT/PAC ships. It is identical to K-495-2179 except that it is ship specific (only those systems present aboard the ship are covered), and it is conducted aboard the ship using ship systems for the hands-on portion of training. Two purposes are served; the equipment aboard ship is, in effect, overhauled and made fully operational, and ship's personnel are made conversant with proper operational and maintenance procedures without leaving the ship.

Some serious, potential problems associated with this exportable course (K-495-2180) should be considered. These are outlined below:

- COMNAVSURFLANT/PAC have ships (LSD and LPH) with installed foam generating equipment similar to that on aircraft carriers. Other ships under the control of COMNAVSURFLANT/PAC will receive the Balanced Pressure Proportioner in the near future (DDG 993 class, AOE, AOR). These ships are having, or probably will have, identical problems with their systems as are the aircraft carriers. The two schools presenting this course have had inquiries concerning exporting the foam generating course to COMNAVSURFLANT/PAC ships. Since the number of instructors is limited (there are only two at Norfolk), no class can be offered at the schoolhouse during periods of exported training.
- All aircraft capable ships are not home ported in San Diego and Norfolk. To present course K-495-2180 to all aircraft capable ships may require a dedicated team of instructors. This could call for an increase in manning at the affected schools.
- Instructors stated that the exported course requires a minimum of 9 hours per day for the 5 days of the course. With the sea/shore rotation being, as previously stated, 60 months/36 months. instructors

morale could be adversely affected, particularly with respect to their home life should the incidence of convening course K-495-2180 increase.

- When the foam generating course is exported, no course K-495-2179 can be conducted at the school during this period. To date, this has not been a problem. However, should exportable training be made available to all aircraft capable ships, it may require a reduction in the number of convenings of K-495-2179.
- In some instances ship personnel are called from the training classes due to other, unforeseen circumstances, and sometimes not all of the people associated with the operation and maintenance of the system are attendees.
- It is the consensus of instructors that the primary reason for requesting course K-495-2180 is to bring the foam generating system to its full operational capability. Instructors report that, prior to conducting the course, they must overhaul much of the equipment to ensure it operates. This means the school is being used as a repair facility. If the instructors perform the maintenance functions rather than the ship's personnel, then little is gained by the crew.

b. RECOMMENDATIONS. Because of the potential problems enumerated above, it is recommended that exporting the foam generating system course from the school to the ship be curtailed. However, training is required in foam generating systems by all aircraft capable ships. In order to provide this training, to ensure it is ship specific, and to reduce the time personnel will be away from their ship, it is proposed that course K-495-2179 be reviewed and revised as follows:

- Develop the course in units, each unit covering a specific equipment (FP-1000, TAU) or type of system (balanced system, two speed system).
- Offer quotas for the course by individual ship rather than offering general quotas. This can be handled through the TYPECOM.
- One week prior to course convening date, have the school contact the ship to determine the specific makeup of the system aboard that ship. Tailor the course to the system aboard that ship. Do not teach units of the course which are not applicable. The elimination of some units will result in a reduction in course length; no more than five working days should be required for teaching any existing or contemplated systems as installed on any single ship.
- Offer the course on a weekly basis.

3. NEW COURSE AT SERVICE SCHOOL COMMAND (SSC), GREAT LAKES, ILLINOIS.

a. FINDINGS. The Propulsion Engineering (PE) School, Great Lakes, IL, has incorporated instruction on the twin agent unit into their existing courses. This instruction is a requirement. The proposed training device

to be acquired in support of this unit of instruction was investigated. The device will perform its required function, and is considered cost effective. However, it is the opinion of TAEG that realistic live fire fighting drills are needed to supplement the proposed units of instruction. The rationale for this is presented in TAEG letter (TAEG:CCC W1081 of 24 June 1981) contained in appendix M.

b. RECOMMENDATION. It is recommended that, at the same time the planned 19F series simulator is installed at the fire fighting school, Great Lakes, a modified version of the 19F3 live fire fighting simulator be installed in support of the course taught at the PE school. Terminal learning objectives would be identical to those given for classroom training except they would require a demonstration of techniques rather than a knowledge of techniques.

4. NEW FIRE FIGHTING INSTRUCTORS' COURSE.

a. FINDINGS. Discussions with instructors at the fire fighting schools and the recruit fire fighting facilities elicited two areas of concern. First, the techniques of fire fighting, as taught, are not always consistent with the techniques required by fleet inspection/training teams. Second, the qualifying of fire fighting instructors varies from installation to installation. There is a lack of consistency in qualification requirements among the installations.

b. RECOMMENDATION. This concern was discussed in depth in the TAEG memorandum (TAEG:CCC W1081 dated 9 October 1981) presented in appendix N. The memorandum recommended that CNET develop a fire fighting instructor's course to be attended by all potential fire fighting instructors en route to a duty assignment at any fire fighting school and by USNR-R/S instructors who train personnel who are the responsibility of the CHNAVRES. Terminal objectives proposed are contained in the memorandum.

5. NEW SCENE LEADER'S COURSE. A shipboard fire must be expeditiously attacked using correct procedures and the proper equipment in order that damage will be held to a minimum. Among the repair party personnel, prime responsibility at the fire scene rests with the scene leader.

a. FINDINGS. Some instructors have commented on the inconsistencies evidenced by scene leaders during team training courses, and the fact that there is no formal on-scene leader's course to teach proper skills. One school has developed and gives a half day course on request. This course does not have a CIN number nor is it in the CANTRAC.

b. RECOMMENDATION. It is recommended that a one-half to one day Scene Leader's Course be developed and offered at all fire fighting schools. The length of the course would depend on the number of students per class and the amount of hands-on, live fire fighting training that subject matter experts believe is needed. Terminal objectives for this course would be derived from AWP 50-3. Prerequisites should be attendance at a basic fire fighting course, 6 months shipboard repair party experience, and E-4 or senior.

6. NAVAL RESERVE FIRE FIGHTING TRAINING. Area 2, Identify Special Training Needs, proposed the establishment of four new courses for personnel

whose training responsibility rests with the CNHAVRES. Detailed recommendations are contained in appendix G.

7. OTHER CURRICULA MODIFICATION REQUIRED. Proposed Navy Training Plan For Improved Fire Extinguishing Systems, NTP-S-00-7202B, has been promulgated for comment. It will require modifying the following existing courses: J-495-0412, J-495-0413, J-495-0414, J-495-0418, J-495-0419, K-495-2179, and K-495-2180. Modifications would be minor, but they could have an effect on course length.

SAFETY

AREA 5. INVESTIGATE AND MAKE RECOMMENDATIONS FOR THE
HEALTH/HABITABILITY ASPECTS OF FIRE FIGHTING TRAINING

An examination of health and habitability identified a total of five safety issues. Each of these issues is discussed individually.

1. RESPIRATORY PROTECTION FOR FIRE FIGHTERS.

a. FINDINGS. Investigation revealed that the type of respiratory protection used by instructors varied from site to site. Some schools used the BIO-PAK, others used a gauze mask. No consistency existed, and no Bureau of Medicine and Surgery (BUMED) opinion on the need for respiratory protection was located. A proposed letter from CNET to the Chief, BUMED was submitted to CNET (appendix K). The CNET letter which resulted from the proposed letter covered two points; the requirements for respiratory protection in the existing fire environment, and the type of protection which will be needed when the fire fighting simulators (19F series) become operational. A copy of the CNET letter is appended as TAB A to appendix K.

BUMED assigned responsibility for action on the CNET letter to the Environmental Health Agency, Norfolk. Discussions were held with the action officer at this agency. The BUMED decision was that gauze masks are not satisfactory for instructors in the existing environment. CNET was so notified by Chief, BUMED letter BUMED-31422-DAM:sjy 6263.1 ser 10602020 dated 10 July 1981 (TAB B to appendix K).

Based on the Chief, BUMED letter, TAEG proposed a letter for CNET release to all Functional Commanders (TAB C to appendix K). On 4 September 1981, CNET directed that all instructors wear either an activated OBA or a BIO-PAK whenever they enter a trainer for live fire fighting training exercises (TAB D to appendix K).

Subsequent to the issuance of the CNET letter requiring instructors to wear BIO-PAKS, it was learned that not all fire fighting schools had been issued the equipment. One school, FTC, Mayport, FL, obtained their units

through regular supply channels. Cost was absorbed by the FTC. Neither the Charleston, SC, fire fighting school nor the RTCs have BIO-PAKS. Based on this information, the Naval Sea Systems Command (NAVSEASYS COM), SEA 61Y22, was contacted. It was determined that the original buy of BIO-PAKS was for the purpose of testing them at the fire fighting schools in Norfolk, San Diego, Philadelphia, and Treasure Island. No additional units were obtained, and should additional units be needed, CNET would be required to fund the purchase.

b. RECOMMENDATION. Purchase BIO-PAKS for the Fire Fighting School, Charleston, and the RTCs at Great Lakes and Orlando.

2. OBA/BIO-PAK VOICE AMPLIFIER.

a. FINDINGS. A primary reason given for not using respiratory protection is the voice amplifier designed to be used with the basic equipment. Some schools claim the amplifier distorts the instructor's voice preventing him from communicating with trainees, a potentially dangerous situation. This situation is reported in Commanding Officer, Fleet Training Center, San Diego letter FTCSO:61:mo:MA1 1500 Ser 1743 dated 25 August 1981 (TAB E to appendix K). The letter requests a communications upgrade or a suitable replacement. Detailed discussions were held with personnel at the FTC, San Diego, regarding the BIO-PAK amplifier. It was reported that there was a potential lack of spare parts for the amplifiers, and that in the intermediate period it was probable no additional spare parts could be obtained. This was reported to CNET by memorandum with the study team recommendation that this problem be investigated, and, if needed, a high priority program be initiated to develop a substitute voice amplifier. The TAEG memorandum is appended as TAB F to appendix K.

Based on the letter from and discussions held at FTC, San Diego, the two concerns over the voice amplifier were raised with NAVSEA 61Y22. NAVSEA personnel contacted the manufacturers of the BIO-PAK and were assured that spare parts are available.

NAVSEA personnel also stated that the voice amplifier is identical to those issued to fleet units. They recognize that the amplifier has problems in fidelity. The Naval Ocean Systems Center, San Diego, had designed a replacement circuit which was tested at the Fire Fighting School, San Diego. The circuit did not prove entirely satisfactory.

As was stated previously, the voice amplifier used with the BIO-PAK has been given as the primary reason instructors do not wear the issued respiratory protective equipment. From the standpoint of student safety, the argument is not refutable. Even the interim measure described in TAB E to appendix K is not satisfactory.

b. RECOMMENDATION. It is recommended that CNET initiate a priority research program into the instructor communications problem in order to provide instructors at the fire fighting schools with safe, satisfactory equipment. It is suggested that the Surface Warfare Trainer Group (SWTG) would be the ideal forum to initiate this project.

3. MEDICAL SUPPORT FOR FIRE FIGHTING SCHOOLS. Training in the presence of live fire presents an element of danger at all times. In addition, under certain conditions of high ambient temperature and/or humidity there is danger of heat prostration. Lastly, fire equipment, improperly handled, can cause cuts and bruises.

a. FINDINGS. Despite the fact that there are medical facilities available at each base where a fire fighting school is located, a trained medical technician should be available at each training site during live fire fighting evolutions. Not all schools have a hospital corpsman (HM) assigned or authorized. This potential problem was first identified during discussions with personnel at the NTTC, Treasure Island. The Commanding Officer has formally requested an independent duty qualified HM be assigned on a temporary duty basis to the fire school (TAB G to appendix K).

b. RECOMMENDATION. Assessment of the situation led to the conclusion that it would be prudent to have an independent duty qualified HM at all fire sites, including RTCs, at any time live fire fighting evolutions are being performed. This recommendation was made to CNET by TAEG memorandum TAEG:CCC W1081 dated 9 September 1981 (TAB H to appendix K).

4. CLOTHING. The issue of clothing is divided into three parts, the need to wear clothing made of nonsynthetic fiber, the need to wear long sleeve shirts, and the effectiveness of rain gear.

a. SYNTHETIC FIBER CLOTHING.

(1) FINDINGS. This is a problem associated, primarily, with officers and senior enlisted personnel, E-7, E-8, and E-9. Synthetic fibers can, and have, melted when sparks land on the cloth. The melted cloth, in effect, welds to the skin causing severe burns. Only natural fiber cloth should be permitted to be worn during live fire fighting exercises.

(2) RECOMMENDATION. It is recommended that a requirement be inserted in the CANTRAC that no synthetic fiber clothing be worn when attending live fire fighting courses.

b. LONG SLEEVE SHIRTS.

(1) FINDINGS. In order to prevent burns on the arms, schools and the Naval Safety Center recommend that all persons entering a live fire environment wear long sleeve shirts. A recent change to the clothing issue allowance ensures all recruits receive this type of shirt. Prior to this change recruits may or may not have been issued long sleeve shirts. Many schools maintained a stock of cotton, long sleeve shirts for issue to trainees. The need for this precaution no longer exists.

(2) RECOMMENDATION. To ensure students reporting to fire fighting schools for training in a live fire environment arrive in correct attire, it is suggested that the requirement to wear a long sleeve shirt be included in the CANTRAC.

4. RAIN GEAR. During a prior study (TAEG Report No. 82), concern was expressed that the unlined rain gear used at most schools for student protection could transmit sufficient heat to cause burns. All schools and Naval Safety Center personnel were asked of the incidence of burns caused by heat transmitted through the rubberized protective material, and whether they were of the opinion that it was safe. The incidence of burns was extremely small (no statistics were available), and occurred primarily when trainees wore either synthetic cloth or short sleeve shirts. The consensus was that unlined rain gear is safe. Should the recommendations contained in paragraphs 4a and b above be implemented, this should not be a concern.

5. PROTECTIVE CLOTHING.

a. FINDINGS. Commander Naval Air Force, U. S. Atlantic Fleet (COMNAVAIRFANT) in October 1980 proposed to NAVSEASYSKOM the use of three new items of protective clothing (TAB I to appendix K). The NAVSEASYSKOM response (TAB J to appendix K) recommends that TYPECOMs consider requiring that all members of damage control parties wear the helmet proposed by COMNAVAIRFANT due to the enhanced protection provided. The coat and trousers are recommended to be utilized only by hose parties of damage control parties. However, reference was made to the Damage Control/Repair Party Protective Coveralls to become available in FY 82.

b. RECOMMENDATION. It is suggested that CNET contact the NAVSEASYSKOM (REF 0501) to determine whether the protective coveralls would be a cost effective substitute for the presently used rain gear at fire fighting schools. In addition, it is recommended that COMTRALANT/COMTRAPAC be requested to investigate the use or intended use of the new fireman's helmet. Should TYPECOMs intend obtaining these helmets for shipboard use, it may be prudent to obtain these items for use at the fire fighting schools.

BUDGET AND FINANCE

AREAS WHERE THERE ARE SERIOUS FUNDING DEFICIENCIES

An assessment of specific funding deficiencies is difficult and subject to some interpretation. The primary reason for this is that fire fighting schools, generally, are block funded as one of a group of engineering and damage control schools. It is seldom possible to isolate the projected costs of one of the block budgeted/funded schools. A second problem associated with the isolation of fire fighting school costs arises with high cost items. The parent activity allocates a given amount to the engineering and/or damage control division. Toward the end of the fiscal year, the third and fourth divisions appear that there will be excess funds available to the engineering and/or damage control division, the fire fighting school is authorized to incur expenditures for high cost, high use items such as hoses, etc. The excess may emanate from either the command or the division. A third problem that is termed is what is called budget enhancement. Budget

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APPENDIX B

PROPOSED LETTER, CNET TO CNO (OP-39)
SUBJECT: OPNAVINST 3541.1C

COMMANDS AND ACTIVITIES VISITED

Management Information and Instructional Systems Activity, Pensacola, FL
Chief of Naval Technical Training, Memphis, TN
Commander Training Command, U.S. Atlantic Fleet
Commander Training Command, U.S. Pacific Fleet
Chief of Naval Operations (OP-39)
HQ, Commandant U.S. Coast Guard
United States Naval Academy
HQ, Chief of Naval Reserve
Recruit Training Command, Orlando, FL
Recruit Training Command, Great Lakes, IL
Recruit Training Command, San Diego, CA
Fleet Training Center, Mayport, FL
Fleet Training Center, Norfolk, VA
Fleet Training Center, San Diego, CA
Fleet and Mine Warfare Training Center, Charleston, SC
Naval Damage Control Training Center, Philadelphia, PA
Naval Technical Training Center, Treasure Island, CA
Service School Command, Great Lakes, IL
Naval Reserve Readiness Command Region 13, Great Lakes, IL
Naval Safety Center, Norfolk, VA

COMMANDS CONTACTED

Naval Sea Systems Command
Bureau of Medicine and Surgery
Military Sealift Command
Navy Environmental Health Agency, Norfolk, VA

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APPENDIX A

COMMANDS VISITED AND CONTACTED

- Four courses specifically designed for the training of personnel whose training is the responsibility of the CHNAVRES.

17. The anticipated shortage of hull technicians should not adversely affect the fire fighting schools. The effect in damage control schools was not assessed due to time limitations. However, the study team concluded that some special recognition, such as the awarding of appropriate NECs, may enhance the desirability of becoming HTs who emphasize the damage control aspects of the rating.

18. There is no Navy Training Plan (NTP) covering fire fighting equipment in general terms. A new NTP was issued for comment in December 1981, but this covers only three systems.

19. Overall improvement in the fire fighting training system will occur incrementally as the recommended actions are implemented. No single action will provide, within the Naval Education and Training Command (NAVEDTRACOM), a fully coordinated training system, nor can such a system be achieved within a short time period (e.g., 6 months). Achievement of this fully coordinated system will require a series of positive actions with continuous monitoring of the results.

9. NITRAS provides a vehicle which, with minor modification, could incorporate all needed management data. One serious problem at the school level is the lack of understanding of the system, and the need for accurate, timely reports.

10. The method of controlling quotas for fire fighting equipment/system maintenance courses functions effectively. However, some modification to the method is needed for the live fire fighting courses to ensure ships requiring this training on an emergency basis can obtain requisite quotas.

11. Block quotas of a continuing nature should not be issued. The numbers requiring training vary with time; therefore, the quotas requested by the NMPC should precede training by not more than 30 days. This would reduce the number of no-shows, increase the utilization rate, and make more seats available to operational units.

12. Fire fighting schools are operating within available funding levels, but this is due to the ingenuity and dedication of instructors. Should the sources of budget enhancement dissolve and cost escalation continue, serious funding shortages may occur.

13. Instructors and/or personnel assigned to fire fighting schools as training aids and device maintenance technicians are performing building and installed equipment maintenance as well as cleaning chores. These duties distract from instructor duties and may be deleterious to morale.

14. Some fire fighting schools are using instructors, either full or part time, to perform administrative and supply duties. This can cause a diversion of highly trained instructors from their primary duty and, at times, may cause a shortage of instructors.

15. Existing courses at existing facilities, given the physical limitations and environmental constraints, are satisfactory with the following exceptions. For proposed revisions to these courses, see Section II, Area 11.

- A-495-2037/2038, Damage Control P-250 Portable Emergency Pump Operation and Maintenance
- K-495-2179, Foam Generating Systems

16. New courses are needed covering the following areas:

- A live fire fighting course at Service School Command, Great Lakes, to support the instruction now being given in the Propulsion Engineering Schools.
- A new Fire Fighting Instructors' course for the purpose of standardizing the qualifying of instructors and to provide an ongoing link with fleet inspection/training teams.
- A new Scene Leaders course to ensure the practices aboard ships are standard.

SECTION III

CONCLUSIONS

Section II of this report incorporated both the findings and the recommendations of this study. Also, many of the recommendations have already been submitted to CNET via a series of memoranda. Thus, recommendations derived from this study are not presented here. However, the primary conclusions of this investigation are organized in this section.

1. Policy, as established by CNO and implemented by the operational commanders and CNET, is in need of review and revision. Required fire fighting training and the individuals who receive this training are not clearly identified. There is not a defined continuum of fire fighting training providing requisite instruction proceeding from accession through advanced training.

2. Management of the fire fighting schools is direct and effective at the school level. However, in the Continental United States there are seven fire fighting schools managed by three different commanders. Management functions and interaction with user commands is neither consistent nor regular. There is no focal point for fire fighting training within the NAVEDTRACOM.

3. Instructors and their support personnel are a highly dedicated group who perform their duties in an exemplary manner, and in many instances exceed their assigned duties. However, there is not the desired standardization of instruction between schools. The written curriculum for all courses is controlled and is standard. The lack of standard instruction is caused by the primary mode of instruction which is demonstration and guidance of trainees through preplanned drills and exercises. The emphasis on and interpretation of the areas which are considered to be of primary importance and the application of techniques to problem solving are the primary causes of this lack of standardization. These areas and the application of techniques are locally determined and vary from school to school.

4. Midshipmen, both NROTC and USNA, are not receiving the training required by OPNAVINST 3541.1B.

5. Recruit fire fighting training does not prepare the graduate for duty aboard ship in that effective hands-on skill training does not occur, and the OBA is taught by demonstration only.

6. Training for Naval reserves is not satisfactory.

7. Respiratory protection is required by fire fighting instructors. This is available, but not always used because the amplifier provided for use with the OBA and/or BIO-PAK is unsatisfactory.

8. Not all fire fighting facilities have a medical technician available on site during live fire fighting training. For reasons of safety and health it would be prudent to ensure an independent duty qualified hospital corpsman is assigned to each fire field.

- ITEM 4. Purchase BIO-PAKs for instructor use at fire fighting schools. This purchase is restricted to the two RTCs operating their own fire fields and FMWTC, Charleston. A total of 15 BIO-PAKs should be adequate. Support equipment, such as a compressor for recharging, should be available at collocated activities. BIO-PAKs cost approximately \$500 each.
- ITEM 5. Research program to replace/update the voice amplifier used with the OBA/BIO-PAK. At this time both the NAVSEASYS COM and Naval Training Equipment Center (NAVTRAEQUIPCEN) are addressing this problem. There will be a cost factor to update or replace the existing amplifiers when a solution has been found, however, there is no immediate impact.
- ITEM 6. Increase OPTAR funds for fire fighting schools. The cost to implement this proposal cannot be computed with the data available. Information will be required from each school in each of the three priorities listed in Area 6, paragraph 4b.
- ITEM 7. Install a device 19F3, Basic Fire Fighting Trainer, Shipboard, at the Fire Fighting School, Great Lakes. Cost of the trainer, which includes military construction funds, is identical to the cost of item 1. The cost difference lies in that there is an existing fire field with all necessary utilities at Great Lakes; these facilities are not available at Annapolis.
- ITEM 8. Develop and implement new Fire Fighting Instructors' Course. It is anticipated that this course will be developed using an existing fire fighting school as lead with inputs from the remaining schools and CHNAVRES. Two school sites are envisioned, one on each coast. Each course should be in conjunction with an established Instructor Training (IT) school, and collocated with an existing fire fighting school. No budget impact is anticipated although at least one additional instructor will probably be required at each affected IT school.

TABLE 5. PROPOSALS WHICH MAY AFFECT THE CNET BUDGET

ITEM	AREA	PROPOSAL	COST ESTIMATE*
1	2	Install a device 19F3, Basic Fire Fighting Trainer, Shipboard, at the Naval Station, Annapolis	\$16,000,00 including MILCON
2	2	Purchase updated film and equipment for use at RTCs.	\$200,000
3	2	Substitute OBA training for MK-5 gas mask training at RTCs.	\$1,080,000
4	5	Purchase BIO-PAKs for instructor use at fire fighting schools.	\$7,500
5	5	Research program to replace/upgrade the voice amplifier used with OBA/BIO-PAK.	NONE
6	6	Increase OPTAR funds for fire fighting schools.	NOT AVAILABLE
7	11	Install a device 19F3, Basic Fire Fighting Trainer, Shipboard, at the Fire Fighting School, Great Lakes	\$14,000,000 including MILCON
8	11	Develop and implement new Fire Fighting Instructors' Course.	NONE

*Costs are in 1981 dollars except that the cost for the two 19F3 devices are in projected 1985 dollars.

b. RECOMMENDATION. It was recommended in TAEG memorandum (TAEG:CCC W1081 of 3 June 1981), provided in appendix P, that CNET institute the practice of recovering from non-DOD activities money value for expendables used to train.

AREA 7. COST ESTIMATES TO IMPLEMENT STUDY

The majority of the proposals contained in this study can be implemented within existing CNET resources. No funds in addition to CNET resources will be required. Certain recommendations require the acquisition of a limited number of additional billets, or the relocation of billets within a school command. One proposal requires minor travel and per diem, but portions of these costs may be absorbed through other required travel. These proposals, which will not require funds in addition to CNET resources will not be addressed. Only those which may affect existing budgets or later POM submissions are addressed. Proposals which may affect the CNET budget with associated cost estimates are presented in table 5. A discussion of each item in table 5 follows.

- ITEM 1. Install device 19F3, Basic Fire Fighting Trainer, Shipboard, at the Naval Station, Annapolis. Latest cost estimates were obtained for the device 19F3 from proposed POM submissions. A reasonable sum has been included for site preparation since there is no operating fire fighting school at that location.
- ITEM 2. Purchase updated films and equipment for use at RTCs. The greatest cost for this item rests in the film. It was estimated that two 20 minute, 16 mm color films with sound would be required. It is presumed the film would be a commercial production. Cost was calculated on the basis of \$2,500 per minute of finished film. This includes a prepared script. Other items required are the standard shipboard fire fighting equipment of the latest design such as a FESTA truck.
- ITEM 3. Substitute OBA training for MK-5 gas mask training at RTCs. This cost is based on obtaining 175 OBAs for each of the RTCs at Great Lakes and Orlando, and 100,000 OBA training canister candles per year in all RTCs. The A-3 OBAs cost \$1,310 each. Two training canisters are delivered with 40 candles at a cost of \$340. In the interest of safety the manufacturer recommends that not more than 20 candles be used with each canister; therefore, it would serve no useful purpose to acquire candles independently of the OBA canister. There is no direct offset in cost since the MK-5 gas mask uses a filter which, usually, does not require replacement during the usable life of the mask. However, the cost of the initial supplies of OBAs will be offset to some degree by the cost of replacements of MK-5 gas masks.

The schools appear capable of continuing operations as long as they are able to obtain outside low cost or no cost support. However, as it exists, this support cannot be relied upon and is dependent upon instructor ingenuity.

4. FUNDING RECOMMENDATIONS.

a. FINDINGS. Fire fighting schools are necessary and must continue functioning regardless of cost. Overall budget and cost data are available for each command at which a fire fighting school is located. However, as was stated previously, accurate data are extremely difficult to obtain at all fire fighting schools.

b. RECOMMENDATION. Because of the high cost of operating fire fighting schools, records of expenditures and all actions which affect expenditures; i.e., budget enhancement procedures, should be maintained independently of other schools or departments within the command. This action could be accomplished at the school level and should not affect existing accounting procedures within any command. An annual, local review of the costs would facilitate budget planning for the out years and would assist in determining actual cost to train.

Until firm data on total cost to operate the fire fighting schools become available and a further assessment made of these costs, it would be prudent to increase the available OPTAR funds of the fire fighting schools. Based on the assumption that some reduced cost fuel will continue to be available, that limited amounts of foam/AFFF, PKP, and OBA canisters can be acquired from sources other than the Navy supply system, and that spare parts will, of necessity, be obtained solely from the Navy supply system, it is recommended that specific additional OPTAR funds be made available as indicated below. The additional funding is prioritized and given in percentage increase over existing available funds because the quantity of money used varies from school to school.

- Priority 1 - Fuel, gasoline, OBA canisters - 20 percent
- Priority 2 - Spare parts - 40 percent
- Priority 3 - Other fire fighting equipment - 10 percent

A further review of funding requirements will be required when the 19F series of training devices becomes operational.

5. REIMBURSEMENT.

a. FINDINGS. CNET Instruction 7030.1A establishes policy with respect to training other than Department of the Navy personnel at fire fighting schools. Cost to train is to be on a reimbursable basis except for Department of Defense (DOD) military personnel and employees when the Navy has been designated as the DOD single training site, and for civilian fire fighters engaged in a non-profit activity designated for the public safety, health, or welfare. Present practice is to train, without disrupting operational training for Navy personnel, other than DOD activities when requested. Total cost to train is borne by the individual command.

3. OPERATING COSTS. The operating costs of the fire fighting schools are divided into three areas: utilities, housekeeping and maintenance, and expendables. In this study the emphasis was placed on expendables, or those costs which must be paid using school OPTAR funds. As stated previously, it is not always possible to isolate funds budgeted for fire fighting schools; therefore, the study addressed funds authorized and expended rather than the budget. Personnel reassignment, changes in accounting procedures, and shifts of accounting responsibilities during the past two years made the acquisition of all desired information impossible at all locations within the time constraints established for data gathering.

The identified total expenditures at the four schools mentioned previously for the first 3 quarters of both FY 80 and FY 81 averaged \$174,420 and \$197,741, respectively. This is an increase of 13.37 percent.

One fire fighting school, FMWTC, Charleston, SC, reported a use factor for fuel, gasoline, and OBA canisters which has remained constant for this same six quarters.⁷ The quantity used and average cost for the three quarters each year and percentage increase in cost in FY 81 over FY 80 are shown in table 4.

TABLE 4. QUANTITY, COST, AND PERCENTAGE INCREASE IN COST FOR FIRST 3 QUARTERS OF 1980 AND 1981

ITEM	QUANTITY FY 80	COST FY 80 (\$)	QUANTITY FY 81	COST FY 81 (\$)	% INCREASE
Fuel Oil	15,000 gal	10,260.00	15,000 gal	18,225.00	77.6
Gasoline	1,500 gal	1,095.60	1,500 gal	1,920.00	75.2
OBA Canisters	960 ea	23,241.60	960 ea	25,804.80	11.0

Note: Cost is based on the average cost per unit taken from table 2.

The aggregate percentage cost rise of three basic, high use items as shown in table 4 is 32.8 percent. Over the same period of time the aggregate cost of representative spare parts listed in table 3 has risen 40.9 percent.⁸ Over the same time period the average increase in expended funds was 13.37 percent. There is an obvious short-fall of funds which, at this time, is being overcome by the use of budget enhancement procedures.

⁷FMWTC, Charleston, is used to illustrate the effect of inflation because more complete data were available.

⁸All percentages are weighted by using the total cost of the item in 1980 and the total cost in 1981. Thus the differences due to unit cost variances are eliminated.

TABLE 2. AVERAGE COST OF SELECTED ITEMS AND THE PERCENTAGE RISE OVER A TWO YEAR PERIOD

ITEM	COST 1979 (\$)	COST 1980 (\$)	% CHANGE	COST 1981 (\$)	% CHANGE FROM 1979
Fuel Oil (gal)	.438	.684	56.0	1.215	177.1
Gasoline (gal)	.498	.730	46.7	1.280	157.0
OBA Canister (ea)	21.660	24.210	11.8	26.880	24.1
Foam & AFFF (container)	22.120	20.450	-7.5	22.040	-0.4
PKP (container)	24.240	24.700	1.9	26.670	10.0
1½" Hose (50' Length)	59.570	58.580	-1.7	69.260	16.3

In addition to examining the price rise of high use items, the cost of some spare parts for the P-250 pump was gathered for February 1980 and July 1981. These costs and the percentage price rise are shown in table 3.

TABLE 3. COST OF SELECTED P-250 PUMP SPARE PARTS AND PERCENTAGE PRICE RISE IN ONE YEAR

PART	UNIT COST (\$) FEBRUARY 1980	UNIT COST (\$) JULY 1981	% CHANGE
Spark Plug	1.50	1.95	30.0
Crankcase	105.44	154.51	46.5
Crankshaft	121.06	148.12	22.4
Cylinder Head	14.94	18.97	27.0
Impeller Housing	130.83	187.54	43.3
Pressure Regulator	100.56	159.84	58.9
Impeller Seal	23.64	27.88	17.9
Knob, Low Spd. Adj.	1.18	4.66	294.9

use regular gasoline. When the quantity of gasoline used is considered, the annual savings by switching to JP-4 or JP-5 could be significant. The requirement to use unleaded gasoline is illogical. One of the schools using unleaded gasoline has a pollution suppressant system, the other does not. In both instances the switch to a JP fuel or regular gasoline would have no impact on emissions. It is strongly recommended that fire fighting schools operating under a restriction to use unleaded fuel apply to the appropriate authority for an exception to the regulation.

Contaminated fuel burns in the fire fighting structures almost as well as uncontaminated fuel. In fact, clean fuel becomes contaminated as soon as it is injected into the structures. At all ports this fuel is available from either the fuel depot or from operating units. Discussions with personnel at the schools which use contaminated fuel, both instructors and medical technicians (HM), have uncovered no major problems. One school does not use contaminated fuel because they fear a reduction in the succeeding year's fuel allocation should they not use the full planned amount each year. This argument appears to be spurious in that local agreements between commands could prevent this problem from arising.

Estimates of the money saved in FY 81 through the use of budget enhancement procedures varied from \$10,000 per year to \$200,000 per year with the average saving being approximately \$68,000. Subsequently, when actual expenditures are discussed, this facet of the cost of operating fire fighting schools must be considered.

b. RECOMMENDATION. To ensure all fire fighting schools are aware and take advantage of the cost avoidance features of using JP fuel in lieu of gasoline and contaminated fuel, it is proposed that CNET release the letter provided in appendix O of this report.

2. COST ESCALATION. An attempt was made to establish the actual cost of specific expendables over a three year period. Records were incomplete and the base costs varied from location to location. However, the cost of high use selected items was obtained from and averaged for the years 1979, 1980, and 1981 at four schools.⁶ These and the percentages rise over the base price in 1979 are depicted in table 2.

⁶The four schools are representative of both the East and West Coasts; they do not include an RTC.

enhancement is defined, for purposes of this study, as those items used by the school, but which are obtained at greatly reduced prices or at no cost. Thus, it is apparent that the actual cost of operating the fire fighting schools is the only valid cost assessment tool available. The budget, as a planning tool, has little meaning.

The analysis of this problem area was somewhat constrained due to difficulties in obtaining accurate, exact data at some commands. Records of operating costs were difficult to locate and, frequently, combined with expenditures of other units within the command. Within the time available, all desired cost items, particularly for prior fiscal years, could not always be located.

1. BUDGET ENHANCEMENT.

a. FINDINGS. Some form of budget enhancement is practiced at all fire fighting schools except RTC, Great Lakes and RTC, Orlando. At these locations no direct source of outside support could be identified. No records are maintained of materials acquired, and no direct savings can be computed. However, most schools were willing to provide an estimate of the value of goods obtained. A cost saving of particular importance stems from the fact that most schools construct many of their own training aids and devices, and some schools perform much of the maintenance using instructors. Thus, budget enhancement covers not only expendibles used for training, but also materials used to construct aids and devices, and maintenance materials. Instructor labor devoted to maintenance is not included even though this is, in reality, a cost avoidance item.

Direct budget enhancement includes the following specific major items. The source of items is included, where appropriate.

- OBA canisters--obtained from salvage, U.S. Air Force (they cost less), and turn-in units from ships
- Student clothing--obtained from published salvage excess lists and salvage yards
- JP-4 or JP-5 fuel--used in lieu of gasoline
- Foam and AFFF--obtained from salvage or ship turn-in stocks
- Contaminated fuel--obtained from various sources. However, if obtained from the fuel depot it has a cost of approximately 50 percent of regular fuel prices.
- Materials used for training aids or maintenance--are drawn from salvage yards.

Two items from the above list warrant additional comments.

One school uses JP-4 or JP-5 fuel in lieu of gasoline even though it is slightly more difficult to ignite. Two schools use unleaded gasoline because of Environmental Protection Agency (EPA) or local regulations. All others

From: Chief of Naval Education and Training
To: Chief of Naval Operations (OP-39)

Subj: OPNAV Instruction 3541.1C

Ref: (a) OPNAVINST 3541.1B, Subj: Damage Control Training Requirements
(b) OPNAVINST 3541.1C (Draft), Subj: Shipboard Damage Control Training Requirements
(c) CNET ltr Code N-23 dtd 13 Dec 1979
(d) CNET ltr Code N-231 dtd 23 Jan 1980

1. Reference (b) is a proposed revision to reference (a). References (c) and (d) forwarded the CNET comments on reference (b).

2. Enclosure (1) to reference (a) refers to personnel who require "advanced fire fighting knowledge and expertise..." yet does not define advanced. Reference (b) classifies personnel who require "specialized knowledge of damage control, primarily in the area of fire fighting techniques..." and does not define specialized knowledge.

3. Existing and proposed fire fighting training is, for all practical purposes, divided into three phases: accession, basic, and advanced:

- Accession training is indoctrinary and may not prepare personnel for their shipboard responsibilities. Rather, it is designed, particularly at recruit training centers, to familiarize personnel with equipment and develop a measure of self confidence.
- Basic fire fighting training enhances the capability of individuals to use existing equipment, teaches the organization and capabilities of the fire fighting team, and demonstrates the ability to control and extinguish fires of all types.
- Advanced fire fighting training is designed to hone the capabilities of existing shipboard teams, particularly the senior and key men assigned to each team.

4. CNET has tasked the Training Analysis and Evaluation Group (TAEG) to examine the ramifications of reference (b). Three areas are of major concern.

a. Funding responsibilities as defined in paragraph 7 of reference (b) are subject to misinterpretation. This was discussed in reference (c).

b. Graduates of accession fire fighting training may not be prepared for the responsibilities inherent with assignment to shipboard duty. This concern will be investigated during a TAEG study now being performed.

Subj: OPNAV Instruction 3541.1C

c. Although fire fighting is subordinated under the general heading of damage control, it is a specialty area within itself, and encompasses all personnel aboard a ship rather than a selected group(s). The definitions of levels of training, as presented in reference (c), are too general when applied to fire fighting.

5. It is recommended that the three phases of fire fighting training, as defined in paragraph 3 above, be incorporated in reference (c), and that phase 1 be included under level 1 of damage control training, phase 2 under level 2, and phase 3 under level 3.

TAB A TO APPENDIX B

CNET LETTER TO CNO (OP-39)
DATED 8 JUNE 1981
SUBJECT: OPNAVINST 3541.1C

Code N-214
8 Jun 1981

From: Chief of Naval Education and Training
To: Chief of Naval Operations (OP-39)

Subj: OPNAV Instruction 3541.1C

Ref: (a) OPNAVINST 3541.1B, Subj: Damage Control Training Requirements
(b) OPNAVINST 3541.1C (Draft), Subj: Shipboard Damage Control Training Requirements
(c) CNET ltr Code N-23 of 13 Dec 79
(d) CNET ltr Code N-231 of 23 Jan 80

1. Reference (b) is a proposed revision to reference (a). References (c) and (d) forwarded the CNET comments on reference (b).

2. Enclosure (1) to reference (a) refers to personnel who require "advanced fire fighting knowledge and expertise..." yet does not define the term "advanced". Reference (b) classifies personnel who require "specialized knowledge of damage control, primarily in the area of fire fighting techniques..." and does not define the term "specialized knowledge".

3. Existing and proposed fire fighting training is, for all practical purposes, divided into three phases: accession, basic, and advanced.

a. Accession training is indoctrinary and may not prepare personnel for their shipboard responsibilities. Rather, it is designed, particularly at recruit training centers, to familiarize personnel with equipment and develop a measure of self confidence.

b. Basic fire fighting training enhances the capability of individuals to use existing equipment, teaches the organization and capabilities of the fire fighting team, and demonstrates the ability to control and extinguish fires of all types.

c. Advanced fire fighting training is designed to hone the capabilities of existing shipboard teams, particularly the senior and key men assigned to each team.

4. CNET has tasked the Training Analysis and Evaluation Group (TAEG) to examine the ramifications of reference (b). Three areas are of major concern.

a. Funding responsibilities as defined in paragraph 7 of reference (b) are subject to misinterpretation. This was discussed in reference (c).

b. Graduates of accession fire fighting training may not be prepared for the responsibilities inherent with assignment to shipboard duty. This concern will be investigated during a TAEG study now being performed.

Code N-214
8 Jun 1981

Subj: OPNAV Instruction 3541.1C

c. Although fire fighting is subordinated under the general heading of damage control, it is a specialty area within itself, and encompasses all personnel aboard a ship rather than a selected group(s). The definitions of levels of training, as presented in reference (b), are too general when applied to fire fighting.

5. It is therefore recommended that the three phases of fire fighting training, as defined in paragraph 3 above, be incorporated in reference (b), and that phase 1 be included under level 1 of damage control training, phase 2 under level 2, and phase 3 under level 3.

L. H. Grimes, Jr.
Assistant Chief of Staff
for Recruit and Specialized
Training Operations

Copy to:
TAEG

APPENDIX C

TAEG MEMORANDUM TO CNET
DATED 16 JULY 1981
SUBJECT: FLEET FIRE FIGHTING (F/F) TRAINING REQUIREMENTS

TAEG:CCC
W1081
16 July 1981

MEMORANDUM

From: Project Director, Implementation of Fire Fighting Recommendations
To: Chief of Naval Education and Training (Code N-214)

Subj: Fleet Fire Fighting (F/F) Training Requirements

Ref: (a) TAEG Memorandum TAEG:CCC W1081 of 28 May 81
(b) Telecon between Mr. G. Bunde (CNET Code N-214) and
Mr. C. Cordell (TAEG)

Encl: (1) Proposed letter to CINCLANTFLT and CINCPACFLT

1. Reference (a) forwarded a proposed letter to CINCLANTFLT which requested that the LANTFLT TYPECOMS revise their directives concerning F/F training requirements. During reference (b), it was suggested the proposed letter was not timely since CNO (OP-39) is in the process of revising the Navy governing directive on damage control (to include F/F). Therefore, to request the fleets to revise their subordinate directives without CNO guidance may cause a redundant effort.

2. In light of paragraph 1 above, it is agreed that the proposed letter submitted with reference (a) should not be released. However, there remains a need to identify F/F training requirements of the fleets as rapidly as is possible. Enclosure (1) is a recommended letter to CINCLANTFLT and CINCPACFLT which requests action to assist CNET in identifying fleet requirements. It is requested CNET release this letter.

C. C. CORDELL

Copy to:
CNET (Code 022)

From: Chief of Naval Education and Training
To: Commander in Chief, U.S. Atlantic Fleet, Norfolk, Virginia
Commander in Chief, U.S. Pacific Fleet, FPO San Francisco, California

Subj: Fire Fighting Training Requirements

Ref: (a) OPNAVINST 3541.1B, subj: Damage Control Training Requirements
(b) OPNAVINST 3541.1C (Draft), subj: Shipboard Damage Control Training Requirements

1. Reference (b) is a proposed revision of reference (a) which is the effective OPNAV Policy Directive on damage control training requirements. Fire fighting (F/F) training is a major subdivision of damage control.

2. CNET has reviewed the various TYPECOM directives which are based on OPNAV/Fleet Commander policy. The purpose of this review was to insure all training requirements are met, and to identify the numbers of trainees who could be expected to attend each of the F/F and F/F equipment maintenance courses annually. This information would provide CNET with the needed data to perform the following two necessary actions.

a. Conduct a review of existing courses to assure the course material is current, and to develop new needed courses or delete courses no longer deemed required by the fleets.

b. Reassess the personnel distribution and funding requirements at each of the F/F schools.

3. The review did not provide the requisite detailed information to accomplish the above actions for the following reason. Specific TYPECOM training requirements are not identifiable from the directives. To illustrate, in one directive the only fire contact requirement is that, when feasible, personnel assigned to repair/fire parties perform as a team in live fire fighting training. Neither mandatory quotas nor the number of persons who require training in specific courses are identified.

a. Thus CNET is unable to identify the relative criticality of F/F and F/F equipment maintenance courses.

b. The directives are so written, that CNET cannot make a determination of the numbers of individuals and/or teams who will require training in any of the courses offered. Without an estimate substantiated by user stated requirements, budget and personnel decisions are highly suspect and are difficult to defend.

4. In order to assist CNET in the evaluation of F/F and F/F equipment maintenance training, it is recommended that CINCLANTFLT and CINCPACFLT request their TYPECOMS to review their F/F and F/F equipment maintenance training requirements with the purpose of providing CNET the following information.

- a. Anticipated course requirements for FY82.
- b. Which of the existing courses are not satisfactory and the reasons therefore.
- c. Required shore based training that is not currently available.
- d. Problem areas not previously discussed such as improper training equipment or difficulty in obtaining quotas.

5. CNET has directed the Training Analysis and Evaluation Group (TAEG) to analyze F/F training requirements. In view of this, it is requested that replies be sent directly to TAEG with a copy to CNET (Code N-222). Point of contact in TAEG is Mr. C. C. Cordell or Mr. R. V. Nutter, AV 791-5673. Direct liaison is authorized.

Copy to:
COMNAVSURFLANT
COMNAVSURFPAC
COMNAVAIRLANT
COMNAVAIRPAC
COMSUBLANT
COMSUBPAC
COMTRALANT
COMTRAPAC
CNTECHTRA
TAEG

APPENDIX D

TAEG MEMORANDUM TO CNET
DATED 9 SEPTEMBER 1981
SUBJECT: TRAINING EQUIPMENT AT FIRE FIGHTING SCHOOLS

TAEG:CCC
W1081
9 September 1981

MEMORANDUM

From: TAEG Project Director, Implementation of Fire Fighting
Recommendations
To: Chief of Naval Education and Training (N-222)
Subj: Training equipment at Fire Fighting Schools

Ref: (a) OPNAV Instruction 4490.2B
(b) NAVMAT Instruction 4490.1B
(c) Officer in Charge, Naval Sea Support Center, Pacific,
Detachment ltr 40/AJB:es ser 4484 of 22 Dec 1980

1. Reference (a) states the policy of the Chief of Naval Operations with respect to the availability of equipment for training purposes. Paragraph 4 of the instruction is quoted for information.

Policy. The availability of equipment for training purposes, when operational installation and manning by Navy military personnel are anticipated, has a higher priority and more demanding schedule for availability than the operational installations.

Reference (b) contains the Chief of Naval Material (CNM) endorsement of this policy and directs compliance by all CNM Designated Project Managers and System Command Headquarters. Reference (c) forwarded to CNET a Draft Navy Training Plan (NTP-S00-7202B) on Improved Fire Extinguishing Systems.

2. Visits to Fire Fighting Schools have revealed that new fire fighting equipments are being introduced into the operational forces without the schools being aware of the situation. To illustrate:

a. The P-250, Portable Emergency Pump, is being phased out and being replaced with the PE-250, an electric start version of the P-250. No school, including the course model manager for the course covering the Portable Emergency Pump, was issued a PE-250 pump. Some schools, including the course model manager, did obtain a pump. Subsequently, a modified version of the PE-250 was issued. No school has this pump although it is in operational use. The course model manager for the Portable Emergency Pump course discovered the modified version of the PE-250 when trainees attending the course indicated that the PE-250 being taught was not the same as the PE-250 on their ship.

TAEG:CCC

W1081

9 September 1981

Subj: Training equipment at Fire Fighting Schools

b. The Navy All Purpose Nozzle and applicators are being replaced by the new Vari-nozzle. No school nor the Recruit Training Centers have been issued the new equipment.

3. Discussions with personnel at CNTECHTRA have been held on the subject of new fire fighting equipment. It is their belief that the Navy Training Plan (NTP) stated requirement for equipment for Fire Fighting Schools is the only method of insuring adequate training equipment is made available in a timely fashion.

4. NTPs were located covering some individual equipments, and reference (c), not approved, has been submitted on the HALON, High Capacity Fog Foam, and Twin Agent Systems. No NTP has been located on the Portable Emergency Pump or Vari-nozzle. No general NTP covering fire fighting equipment or systems has been identified.

5. Unless the Fire Fighting Schools and Recruit Training Commands receive current equipment as specified in reference (a), training of both operator and maintenance personnel cannot be satisfactory.

6. It is recommended that CNET submit a draft general NTP to the Chief of Naval Operations which incorporates the appointment of a single point of contact for fire fighting training within the Naval Education and Training Command, and authorizes direct liaison with the Chief of Naval Material for the acquisition of new/updated/modified fire fighting equipments and systems. As an interim measure pending the issuance of the proposed NTP, it is suggested that CNET designate a single point of contact for all fire fighting training with responsibility of coordinating the requirements of the CNET functional commands, and the authority to interact with CNM in order that needed training equipment be obtained in a timely manner.

CURTIS C. CORDELL

Copy to:
CNET (022)

APPENDIX E

MIISA MESSAGE 172306Z JULY 1981
SUBJECT: IDENTIFICATION OF LOCAL ADP SYSTEMS
THAT ARE SUPPORTING OR COULD
SUPPORT NITRAS

01 01 00000000 JUL 21 RR 98 0000 1971400

FROM MIISA PENSACOLA FL

TO AIG TWO ONE NINE

UNCLAS //NOISDC//

SUBJ: IDENTIFICATION OF LOCAL ADP SYSTEMS THAT ARE SUPPORTING, OR COULD SUPPORT, NITRAS

1. SPORADICALLY, THE NITRAS MANAGEMENT OFFICE, MIISA, PENSACOLA IS INFORMED BY A TRAINING ACTIVITY THAT A PARTICULAR ADP SYSTEM WITH COMPUTER/TERMINAL HARDWARE IS AVAILABLE AND REQUESTS ASSISTANCE IN BEING ABLE TO REPORT ON-LINE TO THE NITRAS COMPUTER AND TO VIEW THE DATA BASE. IN EACH CASE, THE INFORMATION IS APPRECIATED AND THE ON-LINE CAPABILITY ALLOWS NITRAS TO BE THAT MUCH MORE RESPONSIVE TO ALL CONCERNED.

2. IT IS REQUESTED THAT ALL NITRAS USERS IDENTIFY BY MESSAGE TO MIISA PENSACOLA FL ANY ADP SYSTEM PRESENT, OR PROPOSED, THAT IS NOW BEING UTILIZED FOR NITRAS PURPOSES, OR COULD BE USED FOR NITRAS IN THE FUTURE. IDENTIFICATION SHOULD INCLUDE TYPE, MODEL AND HARDWARE CONFIGURATION.

3. POC AT MIISA IS ANNETTE BOOTH OR DON NIEDERT, A/V 922-2414.

CNET STD: N-3-A N8 N7 015 N732
MIISA-0/R NARF-A NAMI-A NTTC DET-A NARDAC-I
HC-36-A VT-36-A NASC-A

DON NIEDERT, CODE 220, 2-4108

01 JUL 21 1971

ROBERT E. HEDGECOCK, OFF. OF. 2-2273

SON: 0024

TAEG Report No. 112

APPENDIX J

TAEG MEMORANDUM TO CNET
DATED 9 SEPTEMBER 1981
SUBJECT: RECRUIT DAMAGE CONTROL TRAINING

From: Chief of Naval Education and Training
To: Commander, Naval Military Personnel Command

Subj: Naval Reserve Officer Training Corps (NROTC)

Ref: (a) OPNAVINST 3541.1B

1. Reference (a) requires live fire fighting training be provided to all officer and enlisted personnel prior to reporting to their first duty afloat. Not all newly commissioned NROTC officers receive this required training.
2. It is recommended that those newly commissioned NROTC officers who have not had live fire fighting training within one year of reporting to their first duty afloat be ordered via a fire fighting school. Blocks of quotas can be requested for these officers following procedures similar to those adhered to in assigning enlisted persons to overseas home ported ships.

TAEG Report No. 112

APPENDIX I

PROPOSED LETTER, CNET TO NMPC
SUBJECT: NAVAL RESERVE OFFICER TRAINING CORPS (NROTC)

R 281325Z JUL 81
FM FLEMINEWARTRACEN CHARLESTON SC
TO COMCRUDESGRU TWO
COMDESRON SIX
COMDESRON FOUR
COMINERON TWELVE
COMSERVRON TWO

BT

UNCLAS //NO1540//

SUBJ: SHIPBOARD FIREFIGHTING TEAM TRAINING (J-495-0413), AIR CAPABLE
SHIP HELICOPTER FIREFIGHTING TEAM TRAINING (J-495-0414)

A. CANTRAC NAVEDTRA 18500

B. COMNAVSURFLANTINST 03500.2A

1. THE TRAINING PROVIDED BY SUBJ COI IS LIKE FIRE INSURANCE IN THAT
ONCE COMBUSTION IS COMPLETE ITS TOO LATE TO INCREASE THE COVERAGE
(OR TRAIN AN EFFECTIVE EMERGENCY TEAM). THE FAILURE RATE FOR TEAM
TRAINING OF CHARLESTON SHIPS IS HIGH (THIRTY EIGHT PER CENT THIS FIS-

PAGE 02 RUEBSGG2708 UNCLAS

CAL YEAR) AND SUGGESTS THAT WE MAY BE LEAVING OURSELVES OPEN FOR A
SERIOUS FIRE WHICH COULD AND SHOULD BE CONTROLLED AT THE MINOR STAGE
IN A PROPERLY TRAINED SHIP.

2. FIREFIGHTING COURSES AT FLEMINEWARTRACEN CHARLESTON HAVE JUST
BEEN AUDITED BY THE CNET TAEG TEAM. THEIR PRELIMINARY FINDINGS VERI-
FY THAT THE PASS/FAIL RATE IS DIRECTLY RELATED TO COMPLIANCE WITH THE
PREREQUISITES ESTABLISHED IN REFS A AND B. IN ESSENCE THE SHIP THAT
SENDS A GAGGLE OF MEN (TO FILL QUOTAS) WHO HAVE NEITHER COMPLETED
INDIVIDUAL POS QUALS NOR WORKED TOGETHER AS A TEAM ARE DESTINED TO
FAIL. THIS IS LARGELY A WASTE OF THEIR TIME AND PREVENTS A MORE
READY COMMAND FROM RECEIVING TRAINING IN THIS SLOT.

3. USING THE THEORY THAT SOME TRAINING IS BETTER THAN NONE AT ALL, IT
HAS BEEN THE POLICY OF THIS COMMAND TO LIGHT FIRES FOR ANY GROUP WHO
SHOWS UP IN SUFFICIENT NUMBERS TO SAFELY OPERATE ON THE FIELD. HOW-
EVER, ORIGINATOR IS CONCERNED THAT EVEN AN UNSATISFACTORY REPORT FAILS
TO FORCE THE ISSUE AND MAY LEAD SOME COMMANDING OFFICERS TO BELIEVE
THAT THEY ARE BACKED BY A marginally effective team who may have had
A BAD DAY RATHER THAN THE DANGEROUS SITUATION OF NO TEAM AT ALL,
WHICH IS MORE LIKELY THE CASE.

4. EFFECTIVE TEAM TRAINING IS ONLY ONE PART IN THE EQUATION REQUIRED

PAGE 03 RUEBSGG2708 UNCLAS

TO COMBAT DISASTROUS SHIPBOARD FIRES, HOWEVER, IT IS ALSO ONE OF THE
FACTORS OVER WHICH WE CAN EXERCISE THE MOST CONTROL. WELL-ORGANIZED
TEAMS FROM O'BANNON, SANTA BARBARA, LEADER, SIERRA, FURER, DEWEY AND
MCDONOUGH HAVE REPORTED FOR TRAINING AND DONE WELL. WE WOULD LIKE
TO HEAR MORE OF THIS KIND OF PREPARATION.

YOUR COMMENTS AND IDEAS ARE SOLICITED. FOR INFORMATION THE FLEET
TRAINING CENTER AT NORFOLK AND MAYPORT APPARENTLY HAVE A MUCH LOWER
FAILURE RATE BECAUSE THEY WILL NOT COMMENCE TRAINING FOR ANY GROUP
WHICH CLEARLY DOES NOT MEET THE CANTRAC PREREQUI-

APPENDIX H

CO, FMWTC MESSAGE 281325Z JULY 1981
SUBJECT: SHIPBOARD FIRE FIGHTING TEAM TRAINING
(J-495-0418), AIR CAPABLE SHIP HELICOPTER
FIRE FIGHTING TEAM TRAINING (J-495-0414)

TAEG:CCC
W1081
14 October 1981

Subj: U.S. Navy Inactive Reserve Personnel Fire Fighting Training and Reporting

6. The MIISA document number G0062-020-UM-OB, Change 1 dated 23 March 1981 lists four codes for reporting student services category (such categories as USN Officer, USNR-R Officers, TAR, etc.), definitely the responsibility of CNR, with another two which may be the responsibility of CNR. However, of the four definitely under the cognizance of CNR, one, code G, includes Midshipmen and Navy ROTC personnel. The two codes which may relate to the CNR cover TAR officer and enlisted persons, but does not identify whether or not their training is the responsibility of CNR. It is strongly recommended that CNR and MIISA personnel coordinate changes to the NITRAS reporting procedures to enable the CNR to identify both the courses and the numbers of personnel and teams trained.

7. Implementation of paragraph 6 above will require that school personnel, both instructors and those responsible for reporting NITRAS data, be completely familiar with and understand how and why the system is to be used. This would require a brief training evolution for each of the fire fighting sites. In addition, CNR personnel undergoing training will require instruction in the reporting to school personnel of their student origin codes.

8. The third problem is concerned with CNR personnel who act as instructors for other CNR personnel undergoing live fire fighting training. These instructors are trained and qualified by the local school instructors. Their training is inconsistent, and, in some instances, is incomplete. To illustrate, the fire fighting facilities at the RTC, Great Lakes, are not equipped for other than recruit training. Thus the CNR instructors are trained only to the extent required to train recruits, and do not have the required range of capabilities. It is proposed that, subsequent to the establishment of an Instructor's course (see TAEG Memorandum W1081 of 8 October 1981 (NOTAL)), all CNR personnel who are certified to instruct fire fighting be required to attend this course prior to certification.

Curtis C. Cordell
Project Director

Copy to:
CNET (Code 022)
CHNAVRES (Code 030, 554)

TAEG:CCC
W1081
14 October 1981

Subj: U.S. Navy Inactive Reserve Personnel Fire Fighting Training and Reporting

- d. Course number four is required for persons whose active duty station is in the vicinity of a flight or hangar deck. This course should be based on course J-495-0414, Aviation Facility Ship Helicopter Fire Fighting Team Training. As with course number three it would be a two day course, the first devoted to organization and individual performance, and the second to team performance training.

4. It is suggested that the most appropriate course model manager for these proposed courses would be NTTC, Treasure Island, CA. This facility teaches all of the courses upon which the reserve courses would be based, is involved with the training of USNR-R and TAR personnel, and is collocated on the same base as a Naval Reserve Readiness Command District.

5. The second problem concerns the procedures followed in the reporting of CNR trained personnel. Only inactive Navy reserve personnel ordered to active duty for training (whether one day or two weeks) are the training responsibility of the CNR. Other reserves and TAR's assigned to operational commands are not the training responsibility of CNR. Thus, when CNR requests quotas for training, and this is directly related to the annual budget, the prior years utilization rate is computed as the ratio of prior quotas requested and the actual number of attendees for the same period of time. The number of attendees is taken from NITRAS reports. To illustrate the problem, the numbers of USNR-R and TAR personnel reported by NITRAS to have been trained in all fire fighting and fire fighting equipment maintenance courses during FY 80 was 218; the number planned to be trained was 1222. CNR records indicate that 281 persons in these categories were trained in specific courses, and an additional 838 persons were trained in fire fighting, non-specific courses. These non-specific courses cannot be identified directly, however, it is the TAEG team's belief, supported by CNR personnel, that the non-specific courses were modified versions of existing fire fighting courses which do not have CIN numbers/UICs. To alleviate the problem of not reporting fire fighting training by CIN or UIC, it is suggested that CNET representatives from NTTC, Treasure Island, CA, and CNR representatives develop the courses proposed in paragraph 3 above. It is further suggested that CNET direct that only these live fire fighting courses be taught to inactive reserves on active duty for training or those performing regularly scheduled drills. In addition, it is proposed that CNET request the CNR to direct his activities to request live fire fighting training for reservists on active duty for training and on regularly scheduled drills only in the newly developed courses.

TAEG:CCC
W1081
14 October 1981

MEMORANDUM

From: TAEG Project Director, Implementation of Fire Fighting
Recommendations
To: Chief of Naval Education and Training (Code N-222)
Subj: U.S. Navy Inactive Reserve Personnel Fire Fighting Training
and Reporting

1. A TAEG Team visited the Headquarters, Chief of Naval Reserve (CNR) to discuss fire fighting training of personnel under the control of the CNR. Three major problems were enumerated. Each is discussed below.
2. The first problem is the actual training given USNR-R and TAR personnel. At this time, only one course is listed in the CANTRAC as specifically designed for these categories of reservists (Course J-495-0426, Reserve Aircraft Fire Fighting). The actual training given is described by fire fighting school and reserve center personnel as not standard, inconsistent, and, frequently, bearing little resemblance to the curriculum outline. In addition, the training is sometimes 1 day in length, othertimes it is 2 days. CNR personnel have stated that they have no idea what live fire fighting training is being accomplished.
3. An examination of CNR live fire fighting training requirements has led to the conclusion that a total of four (4) new courses is required, and that a single course model manager is needed to maintain the currency of these courses. The four courses are identified below.
 - a. Course number one is a basic/refresher live fire fighting training course conducted over a 2 day period. The contents of this course should be based on existing course J-495-0412, General Shipboard Fire Fighting Training, but should have a distinct CIN and title.
 - b. Course number two is an abbreviated course number one, limited to 1 day.
 - c. Course number three introduces CNR personnel to the team concept of shipboard fire fighting. It would be an advanced team training course based on existing course J-495-0418, Shipboard Fire Fighting Team Training. However, USNR-R's and TAR's are not organized into fire fighting teams, therefore one day would be needed to teach organization and individual job performance, and a second day for team performance training.

TAEG Report No. 112

APPENDIX G

TAEG MEMORANDUM TO CNET
DATED 14 OCTOBER 1981
SUBJECT: U.S. NAVY INACTIVE RESERVE PERSONNEL
FIRE FIGHTING TRAINING AND REPORTING

Code N-214
17 JUN 1981

From: Chief of Naval Education and Training
To: Chief of Naval Technical Training
Commander Training Command, U.S. Atlantic Fleet
Commander Training Command, U.S. Pacific Fleet

Subj: Student Accounting at Fire Fighting Schools

1. Data obtained from NITRAS files indicate that not all courses taught at all fire fighting schools are being reported to NITRAS, and some courses do not have CDP numbers. Thus any record of planned input or numbers of personnel trained cannot be accurate. To illustrate with three examples:

a. NTTC, Treasure Island, conducts a weekly course for U.S. Coast Guard recruits. This course has no CIN number, is not listed in the CANTRAC, and has no CDP number.

b. Course J-495-0400 had no planned input for FY 80 from the fire fighting school, San Diego, although the numbers of actual attendees are recorded in NITRAS. This results in skewed overall utilization rates for this course which, unless the reader is aware of the situation, could lead to improper personnel distribution.

c. On an "as requested" basis, NDCTC, Philadelphia, offers course J-495-0418 to operating units. This capability is not included in CANTRAC, nor are student reports made to NITRAS.

2. It is requested that action be taken to insure all courses taught at fire fighting training facilities (including RTC) be included in the Catalog of Navy Training Courses, and that each course be assigned a CDP number and reported to NITRAS. It is imperative that the NITRAS reports be made using Student Origin Codes (SOC).

ALFRED C. JOHNSON, JR.
ACOS FOR PLANS & PROGRAMS

Copy to:
TAEG

TAEG Report No. 112

TAB A TO APPENDIX F

CNET LETTER TO CNTECHTRA AND COMTRALANT/PAC
DATED 17 JUNE 1981
SUBJECT: STUDENT ACCOUNTING AT FIRE FIGHTING SCHOOLS

From: Chief of Naval Education and Training
To: Chief of Naval Technical Training
Commander Training Command, U.S. Atlantic Fleet
Commander Training Command, U.S. Pacific Fleet

Subj: Student Accounting at Fire Fighting Schools

1. At the present time courses are being offered at some fire fighting training facilities which are not assigned course CIN numbers and are not listed in the Catalog of Navy Training Courses. In addition, not all students trained are being reported to NITRAS.
2. It is requested that action be taken to insure all courses taught at fire fighting training facilities (including RTC) be included in the Catalog of Navy Training Courses, and that each course be assigned a CDP number and reported to NITRAS. It is imperative that the NITRAS reports be made using Student Origin Codes (SOC).

Copy to:
TAEG

Enclosure (1)

TAEG:CCC
WA1081
3 June 1981

MEMORANDUM

From: Training Analysis and Evaluation Group
To: Chief of Naval Education and Training (CODE N-214)
Subj: Student Accounting at F/F Training Courses
Ref: (a) POA&M for Fire Fighting Training in the Naval Education and Training Command
Encl: (1) Proposed Draft Letter to the Functional Commands

1. Section 4 of reference (a) identifies 13 areas to be considered in the course of the study. Area 8 pertains to the student accounting and reporting system.

2. Data obtained from NITRAS files indicate that not all courses taught at all F/F schools are reported to NITRAS, and some courses do not have CDP numbers. Thus any record of planned input or numbers of personnel trained cannot be accurate. To illustrate with three examples.

a. NTTC, Treasure Island, conducts a weekly course for U.S. Coast Guard recruits. This course has no CIN number, is not listed in the CANTRAC, and has no CDP number.

b. Course J-495-0400 had no planned input for FY80 from the F/F School, San Diego, although the numbers of actual attendees are recorded in NITRAS. This results in skewed overall utilization rates for this course which, unless the reader is aware of the situation, could lead to improper personnel distribution.

c. On an "as requested" basis, NDCTC, Philadelphia, offers course J-495-0418 to operating units. This capability is not included in CANTRAC, nor are student reports made to NITRAS.

3. It is strongly recommended that CNET request his Functional Commanders to insure all courses taught have CIN numbers, are included in the CANTRAC, and are reported to NITRAS. In view of the need to establish the "who" was trained, reports to NITRAS must include SOC identification. A proposed draft letter to the Functional Commander is attached as enclosure (1).

C. C. CORDELL
Project Director,
Implementation of F/F Recommendations

Copy to:
CNET (N-022) w/encl

APPENDIX F

TAEG MEMORANDUM TO CNET
DATED 3 JUNE 1981
SUBJECT: STUDENT ACCOUNTING AT F/F TRAINING COURSES

TAEG:CCC
W1081
09 Sep 81

MEMORANDUM

From: TAEG Project Director, Implementation of Fire Fighting
Recommendations
To: Chief of Naval Education and Training (Code N-222)
Subj: Recruit Damage Control Training

Ref: (a) OPNAVINST 3541.1B, Subj: Damage Control Training
Requirements
(b) CNTECHTRA ltr Code 01622/WPC of 10 Oct 79, Subj: Recruit
Training Profile

1. Reference (a) promulgates policy as it pertains to damage control training in the Navy. Reference (b) reflects recruit post graduate behaviors that the curriculum and course of instruction are designed to provide. Enclosure (2) to reference (b) refers to reference (a) with respect to both basic damage control and NBC defense training. Enclosure (3) to reference (b) requires a demonstrated ability to use the MK5 Gas Mask and only a recognition of the purpose and applications of the Oxygen Breathing Apparatus (OBA).

2. In practice, recruits are required to don the MK5 Gas Mask and enter a contaminated area. In contrast, the OBA is taught in the classroom, approximately 160 trainees with one instructor. Only one recruit per class actually dons the OBA. No general hands-on practice is given.

3. Enclosure (1) to reference (a) requires that all officers and enlisted personnel, prior to reporting to their first duty station afloat, demonstrate the ability to operate or use OBA with an inert training canister. There is no requirement to demonstrate proficiency with a gas mask.

4. Graduates of recruit training en route to duty afloat usually proceed via either Apprentice Training or a Class "A" School. They are not given training in the use of the OBA at either of these facilities. With minor exception, Fire Fighting School where the use of the OBA is taught, is not included in the recruit's pre-reporting cycle of training.

TAEG:CCC
W1081
09 Sep 81

Subj: Recruit Damage Control Training

5. It is recommended that CNET request CNTECHTRA to revise enclosure (3) to reference (b) to require recruits to, "recognize the purpose and applications of the MK5 Gas Mask," and "demonstrate the ability to use the Oxygen Breathing Apparatus with an inert training canister correctly by donning it and entering a contaminated atmosphere."

CURTIS C. CORDELL

Copy to:
CNET (Code 022)

APPENDIX K

PROPOSED LETTER, CNET TO CHIEF, BUMED
DATED 16 APRIL 1981
SUBJECT: RESPIRATORY PROTECTION FOR FIRE FIGHTING INSTRUCTORS

From: Chief of Naval Education and Training
To: Chief, Bureau of Medicine and Surgery (Code 314), Navy Department,
Washington, DC 20372

Subj: Respiratory Protection for Fire Fighting Instructors

1. Fire fighting training today requires the burning of large volumes of petroleum products in a confined space. Since there is less than an adequate supply of air to produce complete combustion, large quantities of black smoke are produced. The environmental problem has been addressed separately, however, instructor health remains of concern and no official document can be located which addresses this problem. CNET has issued BIO-PAKS, a lightweight tank type, air providing device, to the various schools for instructor use. These are not universally used by all instructors who regularly enter the fire environment at all schools. Those instructors who do not wear the BIO-PAK wear a gauze mask.

a. The inconsistency observed in practice is of concern to CNET. Should respiratory protection be required for the health of instructors, then CNET will take action to insure all instructors wear the appropriate protective equipment. Should the BIO-PAK not be required, funds used to purchase and operate these devices can be directed to other areas of need.

b. It is requested the Chief, BUMED, inform the CNET of the respiratory protection required by instructors at the fire fighting schools who enter the fire environment on a regular basis.

2. Because of the quantities of pollutants produced by petroleum based fires, a fire simulator is under development for future use which burns propane under highly controlled conditions. The prototype of this simulator, Device 19F1, is being installed at the Fire Fighting School, Norfolk, Virginia. The ready-for-training date of this device is anticipated to be July 1982. It has been determined that students entering this environment must wear an oxygen breathing apparatus (OBA). Since BIO-PAKS are less tiring over an extended period and preclude breathing ambient air, would they be suitable for instructor use in this environment rather than requiring the instructor to wear OBAs?

3. The CNET point of contact for these two issues is the Training Analysis and Evaluation Group (TAEG), Orlando, Florida 32813. Action officer in TAEG is Mr. C. C. Cordell, AV 791-5673. Direct liaison with the action officer is authorized; he should be contacted in the event additional information is required.

Copy to:
TAEG

TAB A TO APPENDIX K

CNET LETTER TO CHIEF, BUMED
DATED 27 MAY 1981

SUBJECT: RESPIRATORY PROTECTION FOR FIRE FIGHTING INSTRUCTORS

Code N-214
27 May 1981

From: Chief of Naval Education and Training
To: Chief, Bureau of Medicine and Surgery (Code 314)

Subj: Respiratory Protection for Fire Fighting Instructors

1. Fire fighting training today requires the burning of large volumes of petroleum products in a confined space. Since there is less than an adequate supply of air for complete combustion, large quantities of black smoke are produced. The environmental problem caused by this smoke is being addressed separately; however, instructor health remains of concern and no official document can be located which addresses this problem. To protect these instructors from frequent exposure to possible hazardous conditions, CNET has issued biopacks, a lightweight tank type, air providing device, to the various schools. However, instructors who regularly enter the fire environment are not universally using these devices. Those instructors who do not wear the biopack wear a gauze mask.

2. The problem of a heavy smoke will be somewhat alleviated when new fire fighting simulators (19F series) are installed and in use. These simulators will burn propane under highly controlled conditions. The prototype of these simulators, Device 19F1, is being installed at the Fire Fighting School, Norfolk, Virginia. The ready-for-training date of this device is anticipated to be July 1982. At this time the policy of issuing biopacks with the 19F series remains the same as it is with present day simulators. Since biopacks are less tiring over an extended period and preclude breathing ambient air, it is believed that they would be suitable for instructor use in this environment rather than requiring the instructor to wear an oxygen breathing apparatus (OBA). Nevertheless, unless policy based on strong medical guidance is issued, it is anticipated that the current random use of the biopacks will carry over to the new simulators.

3. There is a need for a medical investigation into this matter. Should respiratory protection be required for the health of instructors, then Chief of Naval Education and Training (CNET) will take action to insure all instructors wear the appropriate protective equipment. Should the biopack not be required, funds used to purchase and operate these devices can be directed to other areas of need. It is therefore requested that the Chief, Bureau of Medicine and Surgery, inform CNET of the respiratory protection required by instructors at the fire fighting schools who enter the fire environment on a regular basis.

Code N-214
27 May 1981

Subj: Respiratory Protection for Fire Fighting Instructors

4. The CNET point of contact for these two issues is the Training Analysis and Evaluation Group (TAEG), Orlando, Florida, 32813. Action officer in TAEG is Mr. C. C. Cordell, AV 791-5673. Direct liaison with the action officer is authorized, and he should be contacted in the event additional information is required.

W. L. MALOY
By direction

Copy to:
TAEG

TAEG Report No. 112

TAB B TO APPENDIX K

CHIEF, BUMED LETTER TO CNET
DATED 10 JULY 1981
SUBJECT: RESPIRATORY PROTECTION FOR FIRE FIGHTING INSTRUCTORS



DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY
WASHINGTON, D.C. 20372

IN REPLY REFER TO

BUMED-314.2-DAM:sjy

6263.1

Ser: 10602020

10 July 1981

From: Chief, Bureau of Medicine and Surgery
To: Chief of Naval Education and Training, Naval Air Station,
Pensacola, Florida 32503

Subj: Respiratory Protection for Fire Fighting Instructors

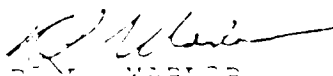
Ref: (a) CNET ltr Code N-214 dtd 27 May 1981
(b) T. A. Hill, A. R. Siedle, and R. Perry, Chemical
Hazards of a Fire Fighting Training Environment,
American Industrial Hygiene Association Journal
33:423-430, June 1972
(c) OIC NAVENPVNTEDEU No. 5, Industrial Hygiene Survey
of Fire Fighting Training Facility, Naval Station,
San Diego, 19 June 1974
(d) CO NAVREGMEDCEN San Diego ltr 29/MHT:sj, 6260.5
(80-151) dtd 15 October 1980
(e) Department of Health and Human Services (NIOSH)
Publication No. 80-144, Certified Equipment List

1. In response to reference (a), the need for respiratory protection for fire fighting instructors was examined. References (b), (c), and (d) were reviewed and several knowledgeable individuals were interviewed.

2. Instructor personnel are chronically overexposed to particulate polycyclic aromatic hydrocarbons, carbon monoxide, and carbon dioxide. Strenuous activity under reduced oxygen conditions is a distinct possibility.

3. The individuals interviewed admitted gauze, handkerchiefs, and the blue surgical masks are in use. National Institute for Occupational Safety and Health (NIOSH) and/or Mine Safety and Health Administration (MSHA) approved respiratory protection must be utilized for fire fighting instructors whenever entry into the trainer is required during operation. Reference (e) provides the manufacturer and approval numbers for the required NIOSH/MSHA certified self-contained breathing apparatus.

4. By copy of this letter, the Occupational Health Services of these Naval Regional Medical Centers which provide support to Naval Fire Fighting Schools are requested to review with the instructors there the importance of their continued use of appropriate respiratory protective equipment.


R. L. MARLOR
By direction

BUMED-31422-DAM:sjy
6263.1
Ser: 10602020
10 July 1981

Subj: Respiratory Protection for Fire Fighting Instructors

Copy to:

CC, NAVREGMEDCEN Charleston SC
CC, NAVREGMEDCEN Great Lakes IL
CC, NAVREGMEDCEN Jacksonville FL
CC, NAVREGMEDCEN Oakland CA
CC, NAVREGMEDCEN Orlando FL
CC, NAVREGMEDCEN Philadelphia PA
CC, NAVREGMEDCEN Portsmouth VA
CC, NAVREGMEDCEN San Diego CA
CC, NAVREGMEDCLINIC Pearl Harbor HI
CC, NAVENVIRHLTHCEN Norfolk VA

TAEG Report No. 112

TAB C TO APPENDIX K

PROPOSED CNET LETTER TO FUNCTIONAL COMMANDERS
SUBJECT: RESPIRATORY PROTECTION FOR FIRE FIGHTING INSTRUCTORS

CNET

From: Chief of Naval Education and Training, Naval Air Station,
Pensacola, Florida 32508
To: Commander Training Command, U.S. Atlantic Fleet, Norfolk,
Virginia 23511
Commander Training Command, U.S. Pacific Fleet, San Diego,
California 92147
Chief of Naval Technical Training, Naval Air Station, Memphis (75)
Millington, Tennessee 38054
Chief of Naval Air Training, Naval Air Station, Corpus Christi,
Texas 78419

Subj: Respiratory Protection for Fire Fighting Instructors

Ref: (a) Chief, Bureau of Medicine and Surgery ltr BUMED-31422-DAM:sjy,
6263.1 Ser 10602020 dtd 10 Jul 81 (NOTAL)

1. Reference (a) states, "approved respiratory protection must be utilized for fire fighting instructors whenever entry into the trainer is required during operation." The term "trainer" refers to any enclosed or semi-enclosed area wherein live petroleum based fires are being fought, or wherein quantities of particulate hydrocarbons, carbon monoxide, and carbon dioxide may be present.
2. It is requested that all fire fighting training activities be directed to insure all instructors wear either an activated OBA or a biopack whenever they enter a trainer for live fire fighting training exercises.

Copy to:
Chief, BUMed (31422)
TAEG

TAEK Report No. 112

TAB D TO APPENDIX K

CNET LETTER TO FUNCTIONAL COMMANDERS
DATED 4 SEPTEMBER 1981
SUBJECT: RESPIRATORY PROTECTION FOR FIRE FIGHTING INSTRUCTORS

Code N-222
4 Sep 81

From: Chief of Naval Education and Training
To: Distribution

Subj: Respiratory Protection for Fire Fighting Instructors

Ref: (a) Chief, Bureau of Medicine and Surgery ltr BUMED-31422-DAM:sjy,
6263.1 Ser 10602020 dtd 10 July 1981 (NOTAL)

1. Reference (a) states that "approved respiratory protection must be utilized for fire fighting instructors whenever entry into the trainer is required during operation." The term "trainer" refers to any enclosed or semi-enclosed area wherein live petroleum based fires are being fought, or wherein quantities of particulate hydrocarbons, carbon monoxide, and carbon dioxide may be present.

2. It is requested that all fire fighting training activities be directed to ensure that all instructors wear either an activated OBA or a biopack whenever they enter a trainer for live fire fighting training exercises.

L. H. GRIMES, Jr.
Assistant Chief of Staff
for Recruit and Specialized
Training Operations

Distribution:
COMTRALANT
COMTRAPAC
CNTECHTRA
CNATRA

Copy to:
Chief, BUMED (31422)
TAEG

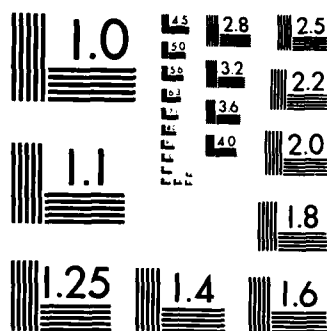
RECOMMENDED SOLUTIONS TO FIRE FIGHTING TRAINING
PROBLEMS(U) TRAINING ANALYSIS AND EVALUATION GROUP
(NAVY) ORLANDO FL C C CORDELL ET AL. FEB 82 TAEG-112

PROBLEMS/07 TRAINING ANALYSIS AND EVALUATION GROUP
(NAVY) ORLANDO FL C C CORDELL ET AL FEB 82 TAGG-112

F/G 5/9

NL

[illegible]



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

TAEG Report No. 112

TAB E TO APPENDIX K

CO, FTC, SAN DIEGO LETTER TO CO, NRM, SAN DIEGO
DATED AUGUST 25, 1981
SUBJECT: SMOKE EXPOSURE LIMITS FOR FIRE FIGHTING
INSTRUCTORS: REQUEST FOR RECOMMENDATION

FLEET TRAINING CENTER
NAVAL STATION
SAN DIEGO, CALIFORNIA 92135

FTCSD:61:mo:MA1
1500
Ser

AUG 2 5 1981

From: Commanding Officer, Fleet Training Center, San Diego, CA
To: Commanding Officer, Naval Regional Medical Center, San Diego
Via: Commander Training Command, U. S. Pacific Fleet

Subj: Smoke Exposure Limits for Firefighting Instructors; request for recommendation

Ref: (a) BUPERSMAN 1860180
(b) CO NAVREGMEDCEN SDIEGO ltr of 15 Oct 80

Encl: (1) FLETRACENSINST 5100.10 of 27 Apr 81

1. Reference (a) tasks Commanding Officers of training centers, upon recommendation of a medical officer, to establish time intervals for local rotation of firefighting instructors between duties involving exposure and nonexposure to smoke. Reference (b) is the result of an Industrial Hygiene Evaluation of the Ambient Air in Building 3196, a firefighting structure of Fleet Training Center, San Diego. Reference (b) contains, inter alia, a recommendation that firefighting instructors wear the BIO-PAK 45 respirator at all times.
2. The recommendation of reference (b) in regard to the wearing of the BIO-PAK 45 is not practical. Although the BIO-PAK has a built-in external communications system, it does not have sufficient power or modulation to provide the instructor with the capability to communicate clear and understandable verbal commands to his students within the training structures during fire fighting evolutions. To require the wearing of BIO-PAK's by all instructors during training fires would subject students and instructors alike to clear and imminent danger.
3. In accordance with reference (a), medical opinion as to acceptable smoke exposure limits for firefighting instructor personnel is requested. Current procedures will be re-evaluated and necessary directives promulgated upon receipt of the requested medical opinion.
4. As an interim measure, one instructor/primary safety observer per evolution has been authorized to wear a Niosh/MSHA approved dust respirator in place of the BIO-PAK. Moreover, each instructor has been limited to a maximum of ten hours per week of smoke exposure during which a Niosh/MSHA approved dust respirator is worn. The ten-hour limit was established using past practice and non-medical judgment as a guide and is, therefore, not considered entirely adequate.
5. By copy of this letter, the Chief of Naval Material is requested to investigate the desirability of a suitable communications upgrade for the BIO-PAK 45 or its replacement.

Robyn M. Campbell, Jr.
ROBYN M. CAMPBELL, Jr.

Copy to:
CHNAVMAT
NAVSAFECEN

TAEG Report No. 112

TAB F TO APPENDIX K

TAEG MEMORANDUM TO CNET
DATED 9 SEPTEMBER 1981
SUBJECT: SAFETY IN FIRE FIGHTING TRAINING



DEPARTMENT OF THE NAVY
TRAINING ANALYSIS AND EVALUATION GROUP
ORLANDO, FLORIDA 32813

TAEG:CCC
W1081

9 SEP 1981

MEMORANDUM

From: TAEG Project Director, Implementation of Fire Fighting
Recommendations
To: Chief of Naval Education and Training (Code N-222)
Subj: Safety in Fire Fighting Training
Ref: (a) TAEG Memorandum TAEG:CCC of 27 July 1981

1. Reference (a) proposed a CNET letter to the Functional Commanders requesting they direct all fire fighting instructors to wear a BIO-PAK or activated OBA when entering a trainer for live fire fighting training exercises.
2. BIO-PAKs are equipped with an amplifier which permits the instructor to communicate with students, even during the noise and confusion attendant in a trainer during live fire fighting exercises. Instructors wearing either the BIO-PAK or activated OBA not supplemented with an external voice amplifier cannot communicate or instruct during live fire fighting exercises. Should no amplifier be available, a serious safety hazard exists; so serious, in fact, that instructors expressed the opinion that they could not conduct live fire fighting training and wear approved respiratory protective equipment.
3. Discussions with Fire Fighting School personnel at FTC, San Diego, California have uncovered a potential, serious problem area which requires immediate investigation. The amplifier used in conjunction with the BIO-PAK is no longer being manufactured, and spare parts, other than those presently in the Navy Supply System, are no longer available. Thus, in the near term; i.e., 12 to 18 month period, it is probable that spare parts can no longer be obtained. At that time BIO-PAKs will be useless to instructors. No other voice amplifier is available at this time.
4. As a result of the potential loss of amplifiers, FTC, San Diego has instituted a program designed to produce a substitute communications system. However, this effort is long term and will not be available in the near term. It is recommended that CNET verify the potential lack of support for the amplifiers and, should spare parts not be available from

TAEG:CCC

W1081

9 SEP 1981

Subj: Safety in Fire Fighting Training

the manufacturer, initiate a high priority program to develop/obtain a fully supported substitute voice amplification system which is compatible with both the BIO-PAK and the OBA.

CURTIS C. CORDELL

Copy to:
CNET (Code 022, 94, 51)

TAEG Report No. 112

TAB G TO APPENDIX K

LETTER CO, NTTC, TREASURE ISLAND TO CO, NRMC, OAKLAND
DATED 28 AUGUST 1981
SUBJECT: FIRE FIGHTING TRAINING; MEDICAL SUPPORT FOR

NAVAL TECHNICAL TRAINING CENTER

TREASURE ISLAND

SAN FRANCISCO, CALIFORNIA 94130

IN REPLY REFER TO:

N7:GWS:leg

1500

Ser 2

28 August 1981

From: Commanding Officer, Naval Technical Training Center, Treasure Island,
San Francisco, CA 94130
To: Commanding Officer, Naval Regional Medical Center, Oakland, CA 94627
Via: Officer in Charge, Naval Regional Medical Center Oakland Branch Clinic,
Treasure Island, San Francisco, CA 94130

Subj: Firefighting Training; medical support for

Ref: (a) NTTC TI ltr Ser 910 of 14 Aug 81 (NOTAL)

1. An internal review of firefighting training was recently conducted at this command. This review indicated that on-site medical support is required to fully support both staff and student personnel who are engaged in hazardous, physically rigorous training evolutions. Time-demands inherent in such a support billet preclude assumption by the HMC currently assigned and fully employed as an instructor in the medical aspects of nuclear, biological and chemical (NBC) warfare defense and gas chamber exercises. Accordingly, reference (a) has been submitted to request that one (1) HMI be added to NTTC's NMP.

a. Inquiries into medical support provided at fire fighting schools in Philadelphia and San Diego revealed the following assignments to support instructor and student personnel:

(1) At Philadelphia: An HM is provided TAD from the regional medical center.

(2) At San Diego: Two HM billets are authorized and two assigned.

b. The prospective dangers faced by fire fighting instructor and student personnel in realistic training exercises are appreciable. The foreseeable dangers are exacerbated in view of two factors: (1) the novice level of firefighting and overall Navy experience of most of our students which frequently results in heightened anxiety and unpredictability; and (2) the advanced age of some students, especially Military Sealift Command civilians, whose stamina, etc. may well be less than needed for this type of training. While this command has enjoyed an excellent record of personal safety for its firefighting students, it is considered prudent, indeed essential, that more be done to minimize the potential for fatal and non-fatal injuries and, thereby, preclude potential untoward consequences for the Navy. The on-site medical support provided in Philadelphia and San Diego indicates this subject is a shared concern of medical and training personnel at other locations.

2. Pending a positive response to NTTC's manpower authorization change request, it is requested that one independent-duty-qualified Hospital Corpsman be assigned TAD by NRMCC, Oakland to NTTC to provide medical support for firefighting personnel during each burn day. This would involve approximately three days per week in accordance with a monthly schedule to be made available by this command. Duties would include: preliminary screening of incoming personnel to preclude participation of those with respiratory, cardiac or similar problems; and immediate emergency medical aid to students and staff as required.

3. Point of contact at this command is LT J. Newlan, A/V 869-5316/5317.


R. L. HAZARD

Copy to:
CNET
CNET

TAEG Report No. 112

TAB H TO APPENDIX K

TAEG MEMORANDUM TO CNET
DATED 9 SEPTEMBER 1981
SUBJECT: SAFETY AND PERSONNEL ISSUES IN FIRE FIGHTING TRAINING



DEPARTMENT OF THE NAVY
TRAINING ANALYSIS AND EVALUATION GROUP
ORLANDO, FLORIDA 32813

TAEG:CCC
W1081
9 SEP 1981

MEMORANDUM

From: TAEG Project Director, Implementation of Fire Fighting
Recommendations
To: Chief of Naval Education and Training (Code N-222)
Subj: Safety and Personnel Issues in Fire Fighting Training

1. Recent visits to Fire Fighting Schools have uncovered two areas which require CNET consideration. The first area pertains to safety, the second to instructional effectiveness. Each area is discussed separately.

2. Safety. Training conducted in the presence of live fires is potentially dangerous at all times. Not only is there a danger from burns, but also there is, during periods of high ambient temperature and/or humidity, the danger of heat prostration. In addition, fire fighting equipment, improperly handled, can cause cuts and bruises. Medical facilities are available on each base where the schools are located, and can and do provide services on an on-call basis. However, there is need for a trained medical technician at each fire fighting school on a permanent basis during live fire fighting evolutions. Not all fire fields have a hospital corpsman (HM) authorized or assigned. In the interest of providing trained emergency first aid when needed, it would be prudent to insure all activities providing live fire fighting training, i.e., recruit training facilities and Fire Fighting Schools, be authorized a permanent billet for an HM who is required to be present at all fire fighting evolutions.

3. Instructional effectiveness. With the exception of the recruit training commands and NDCTC Philadelphia, PA., all fire fighting schools located in the contiguous 48 States provide live fire fighting training to aviation personnel (courses J-495-0413 and/or J-495-0414). Yet not all schools have aviation ratings authorized or assigned. At these schools instructors do not always have the experience and expertise with aircraft adequate to answer student questions with respect to specific fixed or rotary wing aircraft, thus they tend to lose credibility. A more serious problem is that the model manager for one of the aviation fire fighting courses, in this instance FMWTC, Charleston, SC, does not

TAEG:CCC
W1081
9 SEP 1981

Subj: Safety and Personnel Issues in Fire Fighting Training

have assigned an experienced, aviation trained instructor. It is recommended that all fire fighting schools teaching courses J-495-0413 and J-495-0414 include one aviation boatswain's mate (AB) in the allowance of personnel.

CURTIS C. CORDELL

Copy to:
CNET (Code N-022)

TAB I TO APPENDIX K

COMNAVAIRLANT LETTER TO NAVSEASYSCOM
DATED 7 OCTOBER 1980
SUBJECT: PROTECTIVE CLOTHING FOR FIRE FIGHTERS

TAEG:CCC
W1081

24 JUN 1981

From: Director, Training Analysis and Evaluation Group
To: Chief of Naval Education and Training (N-214)

Subj: New Fire Fighting Course at SERVSCOLCOM, Great Lakes; recommendations concerning

Ref: (a) POA&M for Fire Fighting Training in the Naval Education and Training Command
(b) CO NAVTRAEQUIPCEN ltr N-253:MDS:hcs Ser 7079/N-2 of 23 Apr 1981
(c) CO SERVSCOLCOM Great Lakes ltr FT30/10:HKD:d1g 9089 of 22 Jun 1981

1. Section 4 of reference (a) identifies 13 areas to be considered in the course of the study on Fire Fighting Training. Area 11 pertains to new courses, specifically the proposed course at the Propulsion Engineering (PE) School, SERVSCOLCOM, Great Lakes, Illinois. Reference (b) offers three options for a Fire Fighting (F/F) trainer, and identifies the number of possible trainees per annum. Reference (c) responded to reference (b).
2. The TAEG team visited the Naval Technical Training Center (NAVTECH-TRACEN), Millington, Tennessee, and the PE School and F/F School, Great Lakes, Illinois, during the week of 8-12 June 1981. Discussions were held with concerned personnel.
3. Instruction on the twin agent unit (TAU) is a definite requirement at the PE School. The PE School has incorporated these units of instruction in their existing courses. As is stated in reference (c):

The primary objective of fire fighting training to be accomplished at this command is to instill the requisite knowledge, skills and attitudes needed by shipboard personnel, working alone as a cold iron watch, or in teams of two as a machinery space watchstander, to quickly respond to a simulated oil spray fire or an electrical fire by sounding the alarm, activating and using the proper fire extinguishing system or equipment, shutting off fluid flow or power (if possible), establishing communications and controlling space ventilation system...all action to be accomplished within a specified time limit. The training scenario for each one or two man situation should have either of two possible outcomes: (1) the proper steps were taken to extinguish the fire or, (2) the fire has gotten out of control and the space must be abandoned.

TAEG Report No. 112

APPENDIX M

DIRECTOR, TAEG LETTER TO CNET
DATED 24 JUNE 1981
SUBJECT: NEW FIRE FIGHTING COURSE AT SERVSCOLCOM,
GREAT LAKES; RECOMMENDATIONS CONCERNING

TAEG:CCC
W1081
25 September 1981

MEMORANDUM

From: TAEG Project Director, Implementation of Fire Fighting
Recommendations

To: Chief of Naval Education and Training (Code N-222)

Subj: Fire Fighting Equipment Training

Ref: (a) TAEG Memo TAEG:CCC W1081 of 9 Sep 1981

1. The PE-250, an electric start version of the P-250 (Portable Emergency Pump), is being introduced into both the Atlantic and Pacific Fleets. The existing course, A 495-2037, covering the P-250, is taught at all Fire Fighting Schools on both coasts. Course A 495-2038 was developed by the Course Model Manager to cover the PE-250. This course, covering one of three versions of the PE-250, is taught only at the Naval Technical Training Center (NTTC), Treasure Island, California.

2. Reference (a) addressed the problem of obtaining PE-250 pumps. This problem has been aggravated by the multiple versions of this pump being distributed.

3. It is recommended that CNET initiate action to insure all versions of the PE-250 pump be distributed to all Fire Fighting Schools, that Course A 495-2038 be expanded to include training in all versions of the PE-250, and that all Fire Fighting Schools be directed to commence teaching the course.

CURTIS C. CORDELL
Project Director

Copy to:
CNET (022, N-94)

TAEG Report No. 112


APPENDIX L

TAEG MEMORANDUM TO CNET
DATED 25 SEPTEMBER 1981
SUBJECT: FIRE FIGHTING EQUIPMENT TRAINING

SEA 05J1/WSF
Ser 84

- (3) Flight and Hanger Deck Protective Clothing - program to improve flight deck jersey and trouser system and incorporate fire retardancy.
- (4) Aluminized, Proximity Firefighter's Clothing - to enhance protection, comfort and durability of the two-piece and coverall proximity suits to include hood and gloves.

Copy to:
CNO (OP-098)/OP 412/OP 376
 (OP-43)
 (OP-55)
COMNAVSURFLANT
COMNAVSURFPAC
CHNAVTAT (MAT-04)
COMNAVSUP (SUP-03), (0314)
SPCC, MECHANICSBURG, PA.
NAVAL SAFETY CENTER, NORFOLK, VA.
COMNAVAIRPAC


T. M. HOPKINS
Deputy Commander for
Ship Systems

hood and gloves. These coveralls are intended for use by personnel engaged in aircraft crash rescue fires and damage control work requiring a high degree of radiant heat protection and mobility.

- (4) Recommend coat and trousers be worn in conjunction with the following protective gloves and boots to provide optimum protection:

- (a) Glove Shells, Firemen's Aluminized, Proximity
Specification #: MIL-G-29141
FSN 8415-01-003-3433 series
Cost/item \$22.86 pair
Size/range small, medium, large
- (b) Glove Inserts, Firemen's
Specification #: MIL-G-29142
FSN 8415-01-003-3432 series
Cost/item \$8.30 pair
Size/range small, medium, large
- (c) Boots, Fireman's
Specification #: MIL-B-2885E
FSN 8430-00-753-5935 series
Cost/item \$34.29 pair
Size/range 5, 7, 8, 9, 10, 11, 12, 13, 14, 15

4. In response to paragraph 3.c of reference (a), NAVSEA currently has an active personnel protection program addressing the threat of fire to personnel at sea. Among the current programs in progress are:

a. Fire Retardant Engineering Coveralls - these coveralls to be fabricated from Nomex will replace the cotton/polyester coveralls currently worn by engineering personnel. Fleet distribution is scheduled to start the 2nd Quarter of FY' 82.

b. Damage Control/Repair Party Protective Coveralls - will be similar in design to firemen's coveralls discussed in reference (a). These will incorporate a fire retardant shell, insulation and vapor barrier. This development effort will be completed and a supply request package submitted to DPSC in FY' 82.

c. Other programs in progress or to be started in FY' 82 include:

- (1) Fire Retardant Shipboard Uniform - ongoing effort to develop a standardized fire retardant work uniform to be worn by all personnel afloat. Initial procurement is planned for FY' 83.
- (2) Burn Injury Potential - ongoing program to evaluate the performance of fabrics with regard to potential hazard for burn injury.

- (a) Coat, Firemen's
Specification #: MIL-L-10750
FSN 8415-00-926-1534
Cost/item \$59.15
Size/range:

<u>Small</u>	<u>Medium</u>	<u>Large</u>	<u>X-Large</u>	<u>XX-Large</u>
short-regular	short-regular	short-regular	short-regular	short-regular
long	long	long	long	long

- (b) Trousers, Firemen's
Specification #: MIL-T-3901
FSN 8415-00-577-4146 thru 4164
Cost/item \$40.31 pair
Size/range:

32x31	34x33	38x32	42x31
32x32	36x31	38x33	42x32
32x33	36x32	40x31	42x33
34x31	36x33	40x32	44x31
34x32	38x31	30x33	

- (2) The above items provide superior protection to firefighting personnel as compared to the standard work uniform normally worn by firefighting teams below deck. The basic material is a flame-resistant, treated, cotton sateen conforming to class 2 of MIL-C-43122. Contrary to reference (a) coat and trousers fabricated from "Nomex" are not currently available through the stock system.
- (3) Recommend the coat and trousers be utilized only by hose teams of the damage control parties and staged in or near damage control lockers. This recommendation is based on the following:
- (a) To avoid confusion with flight and hanger deck firefighting team equipment.
 - (b) Due to large sized range of coat and trousers, each hose team member will require individual sizing and identification of garments at staging areas.
 - (c) The coat and trousers combination is not to be considered a direct replacement for coat/trousers aluminized, proximity FSN 8415-01-00-478 series and FSN 8415-01-005-4828 series respectively, or the coveralls, fireman's, aluminized, proximity; FSN 8415-00-491-5361 series, which is used in conjunction with the aluminized proximity



DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
WASHINGTON, D.C. 20362

IN REPLY REFER TO
SEA 05J1/WSF
Ser 84

10 August 1981

From: Commander, Naval Sea Systems Command
To: Commander, Naval Air Force, U.S. Atlantic Fleet Norfolk, VA.
Subj: Protective Clothing for Fire Fighters
Ref: (a) COMNAVAIRLANT ltr Ser 331/7956 dtd 7 Oct 1980

1. This letter responds to reference (a) which recommends certain items of protective clothing for interim use by fire parties aboard CVs.

2. COMNAVSEA concurs with the interim firefighting clothing recommendations discussed in paragraph 3.a and b of reference (a). Although reference (a) discussed use of the protective clothing items by inport and at-sea fire parties aboard CVs only, interim use of firefighting clothing described below by onboard firefighting parties on all U.S. Navy surface ships is hereby authorized, subject to concurrence of cognizant type commanders.

3. To clarify discussions outlined in paragraph 2 of reference (a) and to provide type commanders with a description and data required to order the interim protective clothing, the following information is provided:

a. Helmet, Fireman's
Specification #: MIL-H-1987
NSN 8415-01-039-6000
Cost/item \$37.00

- (1) As stated in reference (a) the Model #660 "Phoenix" firefighter's helmet provides substantial protection in the area electrical shock, burn, face, neck and impact protection. In terms of protection, weight and equipment compatibility, the Phoenix helmet is a considerable improvement over the M-1 steel battle helmet currently utilized by firefighting and repair party personnel.
- (2) Recommend type commanders consider this helmet as a replacement for all members of damage control parties due to the enhanced protection provided.

b. Coat and Trousers, Fireman's

- (1) For the purpose of clarifying paragraph 2.b of reference (a) the corrected item description, cost and sizing information is provided as follows:

TAB J TO APPENDIX K

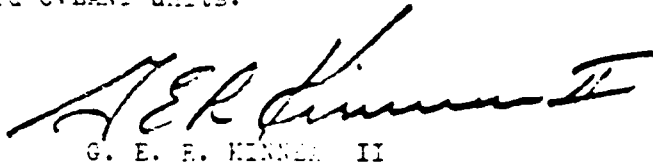
COMNAVSEASYSOM LETTER TO COMNAVAILANT
DATED 10 AUGUST 1981
SUBJECT: PROTECTIVE CLOTHING FOR FIRE FIGHTERS

Subject: Protective Clothing for Fire Fighters

(c. NAVSEA conduct further evaluations of available firefighters protective clothing to determine the most effective design for shipboard use. The protective features of the above mentioned outfits are considered a minimum standard required to provide adequate personnel protection.

4. Currently there is virtually no protective equipment provided to shipboard firefighters. Therefore, it is imperative that firefighters be provided interim protection pending the development of more appropriate equipment.

5. Reference (b) and (c) reflect the appropriate request for alterations of the Allowance Equipage Lists aboard CVLANT units.



G. E. E. KINNEA II

Copy to:

CNO (OP-09B), (OP-43), (OP-55)

COMNAVSTURFLANT

COMNAVAIRPAC

COMNAVMAF (MAF-04)

NAVSEA (SEA-05), (SEA-94), (SEA-942), (PMS-392)

NAVSUP (SUP-03), (0314)

SPCC Mechanicsburg, PA

Naval Safety Center, Norfolk, Va.

Design Considerations in Working for Fire Fighters

the inport/at sea fire party with a minimum amount of additional training or testing required. A more feasible design specifically directed at shipboard use but encompassing all the required protection elements would further enhance the probability of rapid incorporation onboard CV units.

a. Coverall Style Firemans Outfit NOM: None

(1) This is an experimental unit which was evaluated in conjunction with the coat and trouser combination to obtain a reasonable comparison between a one or two piece design. It is manufactured by the Jamesville Clothing Manufacturing Corp. This suit proved to be an excellent protective outfit for shipboard firefighters. It is constructed with a layer of insulation, vapor barrier, and Nomex outer cover. The coverall style of construction is more easily donned and generates less confusion among the fire party compared to the coat and trouser combination.

(2) The design provides exceptional "total body" protection for the shipboard fire fighter. Velcro material provides for easy donning or removal but has several disadvantages to be mentioned below. It does not interfere with the use of an OBA or any other shipboard fire fighting equipment. As with the coat and trouser combination the fire fighter has superior flexibility and a full range of motion to perform his tasks.

(3) The major drawback of this design appears to be the extensive use of velcro to secure all elements of the outfit. Velcro can easily melt or become damaged when exposed to high temperatures. Additionally it permits the suit to be opened accidentally should the firefighter snag it on a protrusion. The use of velcro need not be eliminated but should be confined to areas not directly exposed to the direct radiant heat.

(4) The coverall style fire fighter's outfit would provide a major improvement in the protection of shipboard personnel. Like the coat and trouser it could be easily integrated into the shipboard fire fighting organization. It possesses an advantage over the two piece outfit because it would be more rapidly donned by fire fighters, and more easily stored in repair lockers.

3. RECOMMENDATION. In view of the above the following recommendations are offered:

a. The "660" Phoenix firefighters helmet be immediately incorporated into the COSAL for use aboard CVLANT units. Eighty-five (85) helmets would provide a sufficient number to support the needs of the inport/at-sea fire parties. The Phoenix #660 helmet is an exceptional piece of equipment which should not require additional improvements or study.

b. As interim protection for firefighters a limited number (30 per ship) of the two piece firefighters outfits be provided until a final design can be decided upon, and incorporated into the fleet [Enclosures (7) and (8)]

Shipboard Clothing for Fire Fighters

(4) The outer shell, made of Lexan R is a high impact plastic material exceptionally capable of withstanding heat and absorbing shock. The front adjustable chin strap is easily opened and permits the helmet to lie over the shoulder to allow rapid securing of the helmet once the firefighters OBA has been donned [Enclosures (2) and (3)]. The short brim prevents hot water or other objects from falling on the individuals face or neck but still fits easily through hatches and scuttles. [Enclosure (4) and (5)]

(5) Conversation with the manufacturer (Cairns & Bro of Clifton, N.J.) reveals that the company would make modifications to the basic unit upon request. These modifications include a velcro chin strap, no face shield for personnel wearing an OBA, or mounting brackets to permit lights, etc. to be mounted directly to the outside shell.

(6) This helmet provides superior protection for the head, face, and neck. It meets the performance requirements of OSHA, ANSI Z89.1-1969, NFPA and Military spec MIL-H-1987F. The unit cost of this helmet is currently \$37.00 through the supply system and may be found on the Identification List (10) FSC 8415. In contrast the steel battle helmet costs in excess of \$65.00.

b. FIREMANS COAT AND TROUSERS

NOM, COAT: 8415-00-92601534 Through 1538

NOM, TROUSERS: 8415-577-4146 Through 4164

MIL-SPEC: MILC1750E

(1) These items are similar in nature to the proximity suit because they are worn as a set. The design of both components incorporates a layer of insulation material, a vapor barrier, and an outer material made of Nomex. The coat is equipped with a heavy duty corduroy collar, and is secured in the front with metal snaps and safety clips. The trousers have adjustable waist sizing and also are secured with heavy duty metal snaps and safety clips.

(2) This equipment provides excellent protection from radiant heat, steam or vapor burns and loose debris. It gives the fire fighter superior flexibility and a full range of motion while performing tasks such as climbing ladders, through scuttles, and into crawl spaces.

(3) The coat does not inhibit the wearing of an OBA nor the use of any other shipboard fire fighting equipment. [Enclosure (6)] The trousers may be worn with either boots or shoes. Boots, however, provide the fire fighter much more protection because when worn in conjunction with the trousers the leg is completely covered and protected from fire debris and contact with energized electrical circuits.

(4) The major drawback with the coat and trouser combination is the storage problem encountered aboard ship. Staging of the outfit in repair lockers must be carefully considered to eliminate confusion among firefighters while donning the suit.

(5) The firemans coat and trousers provide significantly enhanced protection for shipboard firefighters. They could be easily integrated into

Subject: Protective Clothing for Fire Fighters

2. DISCUSSION The primary goal of this project was to examine the feasibility of utilizing protective clothing aboard CV units by the inport and at sea fire party. This examination did not specifically address the utilization of this equipment by the entire general quarters repair party. It would be entirely feasible, however, to "dress out" the hose teams of these repair organizations in this protective clothing. Design features required for utilization aboard ship must include a vapor barrier, sufficient heat insulation, storeability, resistance to deterioration and flame retardant capability. The equipment tested and observed is listed below with specific information and observers comments.

- a. Helmet, Firemans:
NSN: 6415-01-039-6000
Mil-Spec: MIL-H-1967

(1) The Model #660 "Phoenix" firefighters helmet was the most impressive item observed and would easily be incorporated aboard ship. This helmet provides a quantum improvement over the steel battle helmet presently utilized by ships company personnel. Its features include:

- (a) Adjustable headband and suspension system.
- (b) Clear, transparent, removable face shield.
- (c) Adjustable chin strap.
- (d) Impact cap inner liner.
- (e) Nomex ear and neck flap.
- (f) Lexan R outer impact shell.
- (g) Non-conduction of electricity

(2) This helmet is presently being utilized by Norfolk Naval Station, and Naval Shipyard, Portsmouth Virginia firefighters with exceptional results. Extensive use by students at FTC Norfolk fire fighting school and aboard two CV units resulted in very favorable comments from all concerned. The weight of the helmet (34 oz. vs 62 oz. for steel battle helmet) is a significant advantage. The Nomex neck and ear flaps, which extend below the shirt collar, provide excellent protection for the ears, neck and cheeks of the firefighters. (Enclosure 1)

(3) The helmet may be worn much more comfortably with an OBA and the face shield provides exceptional eye protection for personnel not wearing an OBA i.e. electrician, access and overhaul. (Enclosure 1) The adjustable headband and suspension system provides universal sizing for all personnel, and the snap in impact cap permits the removal of all inner components for easy cleaning and minor repairs.

DEPARTMENT OF THE NAVY
COMMANDER NAVAL AIR FORCE
UNITED STATES ATLANTIC FLEET
NORFOLK, VIRGINIA 23511

Ser 33-1795-6

7 OCT 1980

From: Commander Naval Air Force, U.S. Atlantic Fleet
To: Naval Sea Systems Command

Subj: Protective Clothing for Fire Fighters

Ref: (a) COMNAVAIRLANT msg 160233Z Jan 80
(b) Allowance change request 22 Sep 80/CNAL/57018-001
(c) Allowance change request 22 Sep 80/CNAL/57018-002

Encl: (1) Protection provided to neck, cheeks, and eyes by helmet
(2) Donning OBA with helmet over the shoulder
(3) Helmet worn with OBA
(4) Firefighter starting through scuttle with helmet
(5) Firefighter passing through scuttle with helmet
(6) OBA worn with firefighters coat
(7) Frontal view of helmet and coat worn with OBA
(8) Side view of helmet and coat worn with OBA

1. BACKGROUND. Even in peacetime shipboard fires continue to plague our CV units despite intensive efforts directed toward prevention and containment once detected. Every year fires cause serious injury, or death to numerous sailors throughout the fleet and millions of dollars in damage to their ships. In many documented cases serious injury or death and significant damage may have been averted had shipboard fire fighters had useful protective clothing. Combat conditions would serve to emphasize improved protective clothing.

a. As stated in reference (a) COMNAVAIRLANT procured and tested three items which can be utilized in the shipboard environment by firefighters to significantly improve self protection and therefore gain quicker access to a fire. Presently the only protective clothing available to the shipboard firefighter aside from his everyday dungaree working uniform and the antiquated steel battle helmet is the aluminized proximity suit. The battle helmet provides no protection from steam or flash type burns and is difficult to wear once the firefighter dons his OBA. The aluminized proximity suit, NSN 8415-01-005-4786 through 4789 is designed specifically for use in flight/hanger decks to combat aircraft fires involving special metals, jet fuels and ordnance. It has proven to be too cumbersome and bulky for wear below decks by firefighters who must climb ladders and pass through scuttles. Additionally the proximity hood cannot be worn below decks because it restricts visibility and severely limits the use of an OBA. Considering the vast improvements made in the civilian fire fighting community utilizing newer technologies, the Navy has been left far behind.

b. The Air Force and Army both without the demanding shipboard environment have begun utilizing some of these newly designed items and have subsequently introduced them into the military stock system. It is three of these items received through the standard stock system with one additional piece utilized on an experimental basis which this letter will examine.

Subj: New Fire Fighting Course at SERVSCOLCOM, Great Lakes; recommendations concerning

In addition, discussions at both the PE school and NAVTECHTRACEN, emphasized that the primary purpose of the units of instruction is to teach PHS, system alignment, the absolute need to know the location and operation of a TAU, and the functional difference between CO₂ and PKP. In view of this, two aspects of the proposed course appear questionable.

a. There appears to be no requirement to teach the use of the OBA. Despite the fact that most ships' engineering casualty instructions require the donning of OBA in a fire situation, this is outside of the stated objectives.

b. The TAU units cover two brief periods at different times in each of 10 courses. The primary input of students for seven of these courses, covering approximately 96 percent of the prospective trainees, is from recruit training. These students will have had little or no prior engineering experience. It is believed that, because of the diversity of learning experiences being provided by the school, the TAU units of instruction may not make the desired impression on the students. A realistic live fire fighting reinforcement should supplement the proposed units of instruction.

4. The F/F School at Great Lakes is subordinated to the RTC, not SERVSCOLCOM. Instructors are rotated between duties at the F/F School and elsewhere at RTC. Since the F/F School is limited to 7 months per year operation (weather is the controlling factor), instructors must requalify annually. Only one live fire fighting course is taught, recruit fire fighting training.

5. The development of the 19F series of fire simulators is proceeding rapidly. A substitute for PKP and AFFF appears imminent, and a satisfactory smoke substitute is highly probable. There are plans to install an all-weather live fire fighting training capability at the existing F/F School, Great Lakes.

6. NAVTECHTRACEN personnel have stated that the PE School will require the training of approximately 11,700 students per year. During FY80, 33,009 recruits required training and this number can be expected to remain relatively constant or to increase only a small proportion.

7. The Catalogue of Navy Training Courses (CANTRAC) lists a specialized course in OBA requalification. This course is not taught at either SERVSCOLCOM or the F/F School, Great Lakes. The donning of the OBA is taught at RTC (by demonstration only) during recruit training.

TAEG:CCC
W1031

Subj: New Fire Fighting Course at SERVSCOLCOM, Great Lakes; recommendations concerning

2. Based on the facts as stated in paragraphs 3 through 7 above, the following recommendations are submitted.

a. Place the F/F School under the command of SERVSCOLCOM, Great Lakes, and staff it with permanently assigned personnel.

b. Hold the classroom portion of recruit F/F training at the RTC as is presently being done. Conduct the live fire fighting training at the F/F School following scheduling procedures similar to those at RTC-F/F School, San Diego.

c. Develop a new course at the F/F school involving live fires, based on the TAU units of instruction as developed by the PE School.

d. Institute the OBA requalification course, X588-8881, at the F/F School using training canisters in lieu of operational canisters. Provide instruction to both PE school trainees and recruits on the OBA.

e. At the same time a 19F series simulator is installed for recruit F/F training, install a second simulator for the newly developed TAU/CO₂ course.

3. The actions proposed in paragraph 3 would have a salutary, secondary benefit. Present CNO directions require live fire fighting training for all embarked personnel within one year of reporting to the operational unit. Provision of TAU/CO₂ live fire fighting training for the PE School graduates would satisfy this requirement, thereby relieving some of the existent pressures on other F/F Schools.

A. F. SMODE

Copy to:
CJLT (02, 022, H-94)
CNTECHTRA (H-331)
SERVSCOLCOM, Great Lakes
NAVCRUITRACOM, Great Lakes
NAVTRAEQUIPCEN (H-301)

TAEG Report No. 112

APPENDIX N

TAEG MEMORANDUM TO CNET
DATED 9 OCTOBER 1981
SUBJECT: FIRE FIGHTING INSTRUCTOR TRAINING

TAEG:CCC
W1081
9 October 1981

MEMORANDUM

From: TAEG Project Director, Implementation of Fire Fighting
Recommendations
To: Chief of Naval Education and Training (N-222)
Subj: Fire Fighting Instructor Training

1. Discussions have been held with the fire fighting instructors at all FTCs, NDCTC, Philadelphia, NTTC, Treasure Island, and FMWTC, Charleston on all aspects of fire fighting training. In addition, recent discussions with NAVSEASYSOM personnel, who conduct technical audits of the fire fighting schools, have revealed that the procedures used to extinguish oil spray fires using the TAU are not always consistent with recommended procedures. This discrepancy was informally brought to the attention of the instructors. Two areas of concern have emerged from these discussions. These areas are:

a. The techniques of fire fighting, as taught at the schools, are not always consistent with the techniques required by fleet inspection/training teams (Propulsion Engineering Boards, Operational Readiness, Underway Training Units). Students have complained to instructors that the techniques vary even among fleet inspection/training teams.

b. The qualifying of fire fighting instructors varies from installation to installation. Time required to qualify differs by as much as 6 weeks. With this much variation in time, there cannot be consistency. Some recruit training facilities do not have adequate equipment to insure instructors are conversant with all aspects of fire fighting.

2. In order to increase the efficiency and effectiveness of fire fighting training, it is recommended that CNET develop a fire fighting instructor's course to be attended by all potential fire fighting instructors en route to a duty assignment at any fire fighting school (including recruit training). This course would be independent of existing courses and taught by instructors dedicated to that specific course; however, the school could be collocated with an established facility. It would be imperative that the management and instructors for this specific course not be subordinate to an existing fire fighting school.

3. The instructor's course would have the following major objectives as they relate to the fire fighting schools:

- a. Safety and safety equipment,
- b. Fire fighting equipment operation and handling,

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9 October 1981

Subj: Fire Fighting Instructor Training

- c. Fire fighting techniques in the various types of fire to be encountered,
 - d. Pre- and post-fire procedures,
 - e. Fire scene procedures,
 - f. Fleet requirements as they differ from school requirements.
4. Since prospective instructors are required to attend an Instructor Training School (ITS) prior to commencing their duties as an instructor, it would be ideal to establish management control of the proposed course under the ITS. Curriculum control should reside at CNET which would eliminate the variations between schools and commands. This chain of command would insure consistency and standardization at the course. Graduates would be certified as having been taught the basic knowledge and the skills required of a fire fighting instructor. Final qualification would remain the responsibility of the individual school. Recertification and requalification should be required for each subsequent assignment at a fire fighting school, or every 4 years.
5. The establishment of Fire Fighting Instructor's School would have the additional benefit of providing facilities to enhance the USNR-R/TAR training as well as that of active duty personnel. The reason for this is that the Chief of Naval Reserve, using existing facilities and USN instructors, qualifies a group of fire fighting instructors to conduct training for USNR-R/TAR personnel. These instructors, in addition to the concerns outlined in paragraph 1, do not have their training updated on a regular basis.
6. An added advantage to the proposed organizational structure is that the Officer in Charge (OIC) of the school could establish direct liaison with fleet inspection/training units. Thus, the school could insure the course curriculum is updated as needed to insure the instructors are teaching fleet-used techniques. In addition, the OIC, through liaison with the Naval Ship System Command, can remain abreast of new developments and, where needed, can obtain appropriate factory training for the instructors.

CURTIS C. CORDELL
Project Director

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APPENDIX O

PROPOSED LETTER, CNET TO FUNCTIONAL COMMANDERS
SUBJECT: FIRE FIGHTING COST AVOIDANCE

From: Chief of Naval Education and Training
To: Distribution List

Subj: Fire Fighting Cost Avoidance

1. One major expenditure at all fire fighting schools is the cost of fuel. This cost has risen dramatically over the past two years.
2. Two cost avoidance measures are available which could reduce the annual fuel costs significantly.
 - a. Use JP type fuel in lieu of gasoline for fire ignition. This fuel is slightly more difficult to ignite, but it is being used satisfactorily at one school.
 - b. For large scale fires use contaminated fuel in lieu of uncontaminated fuel. This is available at the local fuel depots at a greatly reduced cost or may be obtained from local operating units.
3. Where local or EPA regulations direct the use of another type of fuel, it is suggested application be made to the appropriate authority for an exception.
4. It is recommended that addressees investigate the applicability of using JP fuels for ignition and contaminated fuel for bulk burning. Where appropriate it is suggested that the schools be directed to adopt these cost avoidance measures.

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APPENDIX P

TAEG MEMORANDUM TO CNET
DATED 3 JUNE 1981
SUBJECT: REIMBURSEMENT FOR FIRE FIGHTING TRAINING

TAEG:CCC
W1081
3 June 1981

MEMORANDUM

From: Training Analysis and Evaluation Group
To: Chief of Naval Education and Training (N-214)

Subj: Reimbursement for Fire Fighting Training

Ref: (a) CNET Instruction 7030.1A

1. Reference (a) establishes policy with respect to training other than Department of the Navy personnel at Navy fire fighting schools. Cost to train is to be on a reimbursable basis except for other DOD personnel and employees when the Navy has been designated as the DOD single training site, and for civilian fire fighters engaged in a non-profit activity designated for the public safety, health, or welfare.

2. Discussion of this instruction with CNET personnel (N-623) was held. Reference (a) is interpreted to mean that the Navy provides fire fighting instruction for all approved personnel without reimbursement.

3. In view of the paucity of fire fighting training facilities, and the proven expertise of Navy fire fighting instructors, this interpretation appears appropriate. However, the cost to provide training materials, particularly OBA canisters and fuel, has risen to the point where OPTAR funds may be strained. For example, NITRAS reports indicate that the Navy provided training in course J-495-0412 (a course which requires the use of an OBA) for 1248 U.S. Coast Guard personnel during FY 80. This does not include the training provided at Treasure Island for U.S. Coast Guard recruits. OBA canisters cost approximately \$25.00 each.

4. It is recommended that paragraph 4 of reference (a) be revised by adding the following sentence after the existing first sentence. "Activities whose personnel are trained as provided under paragraphs 3d and 3f will be charged for expendibles used in the performance of training."

C. C. CORDELL
Project Director,
Implementation of F/F Recommendations

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